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# INTEGRATION OF TRANSFORMATIONAL THEORIES ON ENGLISH SYNTAX

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# II. INTRODUCTION

## A. Briefly, the Claims of the Present Analysis

Except for the relative clause, all embedded sentences
in this grammar are directly dominated by the node NP. The node
NP itself only appears directly dominated by some case, a case
determined by a head verb, adjective, or noun. Given this frame
of reference, therefore, all sentential complements, whether on
nouns as in (1.a), on verbs as in (1.b), and (1.c), or on adjec-
tives as in (1.d), are nominalizations of the S dominated by an
NP which is dominated by the Neutral case which has undergone
objectivalization (1.a,b,d) or subjectivalization (1.c). If the
head noun is the deletable noun fact, the nominalization may
appear in the surface structure to be dominated by some case other
than Neutral, but (1.e), where the sentential subject might be
assumed to be dominated by a deep structure Instrumental (or Means),
is derived from (1.f), where the item that would be dominated in
a deeper structure by Instrumental case is fact.

> (1) (a) The fact that he left early was annoying.
>     (b) He demanded that she leave early.
>     (c) It appeared that he was stupid.

(d)  He is anxious that she understand his motives.
(e)  That he has blood on his hands proves that
     he is guilty.
(f)  The fact that he has blood on his hands proves
     that he is guilty.

Traditionally, grammarians have divided simplex sentences
into three large classes (sometimes with a fourth -- exclamations
or assertives), the classification being determined by the form
or mood of the verb that is characteristic of each type:  declara-
tives (indicative mood), imperatives (subjunctive mood), and
interrogatives (inversion of subject and auxiliary, or special
verb forms in some languages).  All three types of simplex sen-
tences can be embedded.  When embedded, they undergo transforma-
tional mapping into surface structures that differ considerably
from the surface structure of the simplex form, the form they
would have as the topmost S, to which last-cyclic rules would
apply (e.g. inversion of the interrogative, deletion of the second
person subject of imperatives).  The nominalization rules provide
an account of these differences in form, describing in particular
their clausal form, their infinitival form, and their gerundive
form.

Derived nouns like proposal, insistence, inference, denial,
or claim, which have been taken as transformationally derived,
by some grammarians, are here taken as lexically derived, for
reasons set forth in the general introduction and in part recapi-
tulated in the annotation (Section B) below.  The class of nominals
that have been labeled "Action Nominals" (e.g. by Lees, 1960),
having the form V-ing of OBJ,- as in the killing of the rats,
the several bombings of civilians that we witnessed, the eliminating
of deadwood from the ranks, - are likewise taken here as lexically
derived, for the same reasons (the fact that they have such noun-
like qualities as taking a full range of determiners, relative
clauses, singular/plural contrasts, and so on).  It is necessary
to distinguish these action gerundives, which are lexically
derived, from transformationally derived gerundives, either factive
(the fact of his having given money to John), generic (hunting
polar bears is fun), or verb complements of a highly restricted
type (he avoided leaving).

The description of nominalization is set forth in terms
of a set of parameters, some of which are quite general in that
they partition the predicates which govern nominalizations into
large sets each characterized by a definable range of general
syntactic properties, and others of which are essentially exception
features that set off small classes exhibiting syntactic irregularities.

One important parameter is the distinction between
FACTIVE and NON-FACTIVE first set forth in detail by the
Kiparskys (1968).  They proposed that many of the differences
in the form and meaning of nominalizations depend not on essentially
arbitrary syntactic features but rather on semantic features in
the governing items.  Factive predicates can only occur when the
speaker presupposes that the sentential object or subject of the
predicate is true, or factual; non-factive predicates occur when
the speaker merely asserts or believes the predicate to be true,
but does not presuppose its factuality.  The distinction is
clearest under negation, since the presupposition remains constant
in both the negative and positive forms of the sentence:

> (2) (a)  It is odd that the door is closed.
>          [Kiparsky MS, p.8]
>      (b)  It isn't odd that the door is closed.
>          [Kiparsky MS, p. 9]
>
>      (c)  I regret that the door is closed.
>          [Kiparsky MS, p. 8]
>      (d)  I don't regret that the door is closed.
>          [Kiparsky MS, p. 9]

But with a non-factive predicate, the assumption about the factual-
ity of the sentential object is polarized by negation of the pre-
dicate:

> (3) (a)  It is likely that the door is closed.
>      (b)  It isn't likely that the door is closed.
>
>      (c)  I believe that the door is closed.
>      (d)  I don't believe that the door is closed.

To anticipate later details, factive nominalizations have the deep
structure "the fact that S", non-factive nominalizations have the
deep structure "that S".  More precisely, the structures of (4):



(4) (a)

$CASE_i$

PREP    NP

D    NOM

N    NEUT

the    fact    PREP    NP

S

FACTIVE

(b)

NEUT

PREP    NP

S

NON-FACTIVE

Note that (b) is identical with (a) beginning with the lower right-hand node NEUT.  That is, factive nominalizations appear in a case-frame with the head item <u>fact</u>, non-factive nominalizations appear in a case-frame with any head item except <u>fact</u>. <u>Qua</u> nominalizations, they are alike, and the differences between them depend on the head item.  The relevant claim made by the differentiation of these structures is that so-called factive predicates do not have sentential objects.  They have an NP consisting of <u>the fact</u> as object.  The noun <u>fact</u> in turn does have a sentential object.  The sentences (2.c) and (3.c) have the same surface structure by virtue of a rule which deletes <u>the fact</u> in (2.c).  The deep-structure prepositions are retained or deleted by entirely general rules that operate also with non-sentential NP's throughout the grammar.

A second general parameter in the description of nominalizations, also first set forth by the Kiparskys (1968), is the distinction between EMOTIVE and NON-EMOTIVE predicates.  Predicates which express the subjective value of a proposition rather than knowledge about it or its truth value are said to be <u>emotive</u>. This class of predicates takes <u>for</u> in infinitival nominalizations, as in <u>It is important for us to solve the problem.</u>

Infinitival nominalizations are taken to be a secondary consequence of several distinct processes which have the effect of leaving the verb without a subject with which it can undergo agreement:  either marking the subject with an oblique surface case (as when <u>for</u> is inserted with emotive predicates), or deleting it (as when it is erased by an identical NP in the matrix sentence), or raising it out of its own sentence.  In the general lines of this analysis, details aside, we again follow the Kiparskys (1968).

Not all gerundives are best analyzed as nominalizations. One class which was historically adverbial remains clearly adverbial in sense, although the deep structure of the underlying adverbial is not clear.  But the gerundive in <u>He went hunting</u>, earlier <u>He went a-hunting</u>, still earlier <u>He went on-hunting</u>, and others of the same type (<u>He kept (on) working</u>, <u>He saw me fishing</u>, <u>He continued questioning her</u>) cannot naturally be related to deep-structure nominals unless these nominals are themselves part of an adverbial.


B.  Previous Scholarship

    1.  Chomsky's 1958 Analysis
    2.  Lexicalist versus Transformationalist
    3.  The Distinction between Nominalization and Complementation
    4.  IT + S
    5.  Second Passive, IT-Replacement, and Extraposition
    6.  The Erasure Principle

## 1. Chomsky's 1958 Analysis

In his early writings on transformational grammar Chomsky mentions various types of nominalizations. The rules he proposed were offered as illustrations of certain properties of transformational grammars rather than as full-scale accounts of nominalizations in English. Chomsky has since changed his position on several aspects of nominalization. The following account of his early sketch of complementation and nominalization is mainly of historical interest only, though Chomsky's sketch of complementation, at least, was sufficiently satisfactory that Lees (1960) kept most of the same classes and for several parts of the analysis made no attempt to go any deeper.

The 1958 paper distinguished ten classes of verbs that take different types of complements. In the examples below (Chomsky 1958) the complements have been underlined:

(5) (a) consider, believe,... They consider the assistant qualified.
(b) know, recognize,... We know the assistant to be qualified.
(c) elect, choose,... We elected him president.
(d) keep, put,... We kept the car in the garage.
(e) find, catch,... We found him playing the flute.
(e') persuade, force,... We persuaded him to play the flute.
(f) imagine, prefer,... We imagined him playing the flute.
(f') want, expect,... We wanted him to play the flute.
(g) avoid, begin,... We avoided meeting him.
(g') try, refuse,... We tried to meet him.

Some of these verbs can obviously be assigned to more than one of these classes. Chomsky derived these sentences from separate underlying sentences, the matrix containing a dummy complement which was replaced by part of the constituent sentence in a transformational mapping:

(6) (a) They consider COMP the assistant. MATRIX
(b) The assistant AUX be qualified. CONSTITUENT
(c) They consider the assistant qualified. DERIVED SENTENCE

The 1958 account contained a separate transformational rule for each of the above complement types. The rules are all very similar, and it is obvious that Chomsky was not attempting to achieve much generalization. His main point was that each of the above complements differed by at least one condition, and that this condition depended on the classification of the matrix verb.

Besides these rules for complementation, Chomsky proposed rules for various types of nominalization. The various types are underlined in the following examples:

(7)  (a)  <u>John's proving the theorem</u> was a great surprise.

(b)  <u>To prove the theorem</u> is difficult.

(c)  <u>John's refusal to come</u> was a great surprise.

(d)  <u>The growling of lions</u> is frightening. (Cf. Lions growl.)

(e)  <u>The proving of theorems</u> is difficult. (Cf. Theorems are proved.)

(f)  <u>The country's safety</u> is in danger.

In his derivation, Chomsky provides a dummy nominal which is replaced by the appropriate form of the constituent sentence, with one rule for each type of nominalization. E.g., in Chomsky (1958) the sentence (7.a) has the analysis

$$\begin{Bmatrix} T - it - C + be + a + great + surprise \\ John - C - prove + the + theorem \end{Bmatrix}$$

$$\Rightarrow \quad John + S - ing + prove + the + theorem - \\ C + be + a + great + surprise$$

This is equivalent, in the model of <u>Aspects</u> (Chomsky, 1965), to a tree of the following form:
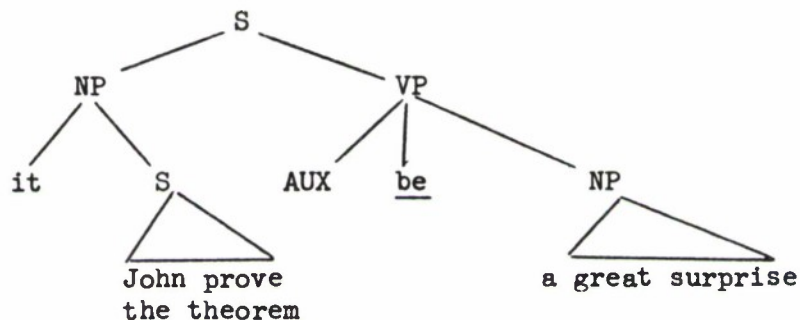


The 1958 paper nowhere discussed the distinction between nominalization and complementation, apparently simply assuming its validity, an assumption subsequently shared by Lees (1960).


## 2. Lexicalist versus Transformationalist

The general arguments which led the UCLA research group to adopt the lexicalist position with respect to such nominals as <u>proposal</u>, <u>safety</u>, <u>insistence</u>, <u>claim</u>, etc. have been presented in GEN INTRO under the heading Theoretical Orientation. The lexicalist

position leads in a natural way to the adoption of Fillmore's
Case Grammar.  The properties of nouns like proposal, insistence,
killing, ... are, in this frame of reference, in no way specific
to a discussion of nominalization, since their expansion in the
deep structure is quite parallel to that of verbs and adjectives,
and the rules of nominalization which apply to sentences embedded
within verbal case frames apply equally to sentences embedded
within nominal case frames.

Chapin (1967) has presented arguments which suggest that
neither position, lexicalist nor transformationalist, is entirely
correct, but the areas of his research are not developed in this
grammar and did not lead us to modify our position.  For example,
he shows that -able in general presupposes a passive underlying it:
"John is pervertable" should be related to "John is able to be
perverted".  He claims this must be a transformational relationship
since there is no apparatus in the lexicon as presently conceived
to utilize the passive within a lexical derivation.  He goes on
to argue that -ity must also be transformationally derived, since
it is added to adjectives in -able.  But nouns with -ity are highly
idiosyncratic in their semantic and syntactic properties, not
predictable in these respects from the underlying verb or adjective.
This kind of evidence suggests that transformational processes
somehow belong within the part of the grammar traditionally known
as "derivational morphology"; and of course Lees (1960) presented
a vast range of similar evidence.

## 3.  The Distinction between Nominalization and Complementation

Inspection of Chomsky's (1958) examples and rules indicates
that his "complements" appear in object position, and his "nominali-
zations" in subject position.  His complementation rules contain
conditions which mention the verb in the matrix sentence, but his
nominalization rules do not.  These observations are purely fortui-
tous, since nominalizations are not confined to subject position,
and even in that position they obey constraints in respect to the
matrix verb:

(8)  (a)  *John's refusal to come is difficult.
     (b)  *John's refusal to come is in danger.
     (c)  He tried to anticipate John's refusal to come.
     (d)  He was annoyed by the fact of John's proving
          the theorem.

Lees (1960) takes (9.a) to be a typical complement construction,
and (9.b) to be a typical infinitival nominalization:

(9)  (a)  I force him to go.  [Lees (1960), p. 74]
     (b)  I plead for him to go.  [Ibid]

He points out that these constructions differ in several ways
(p. 74): "... (1) for him is deletable in nearly all cases:
"I plead to go", while from the Comp sentence him is omitted only
after a special subset...: "I try to go", but not: *"I force
to go"; (2) there is no passive: "He is forced to go by me",
but not: *"He is pleaded for to go by me"; (3) the sentences in
question seem to be parallel to others with an abstract object,
not an animate object: "I force him to go" parallel to: "I
force him", but "I plead for him to go" parallel to: "I plead
for it"; (4) there is no WH-transform of an internal noun:
"Whom do I force to go?", but not *"Whom do I plead for to
go?"..."

    Lees' arguments demonstrate that (9.a) and (9.b) must
be distinguished, but of course they do not show that the dis-
tinction is one of category (NP vs. COMP). Rosenbaum (1967a),
originally written as his dissertation in 1965, argues that
complements and nominalizations, though they must be distinguished
in respect to the relation they have to other nodes of the
sentence, should not be distinguished in respect to their internal
structure. He argues further that they share a wide range of
common transformations such as complementizer specification,
deletion of subjects, and the like. The sentence underlying
him to go in (9.a) and (9.b) is itself a nominalization in both
examples, but the structure of the predication is different
because of the presence in (9.a) of an additional node (details
omitted).

(9)



(a')  ... force him / he go   (b')  ... plead for / he go
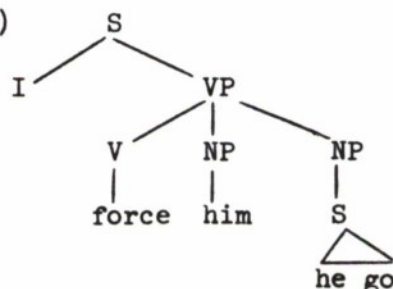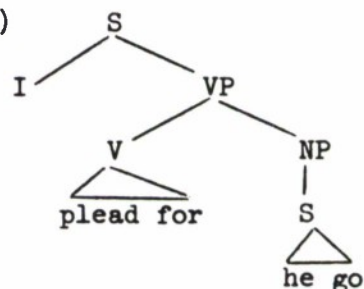
Equi-NP-deletion applies to (9.a') to derive I force him to go.
If the constituent subject of (9.b') were identical with the
matrix subject, the same deletion would apply to derive I plead
to go.

The most important virtue of Rosenbaum's analysis is that it provides an account of the relation between verb complements and nominalizations. This it does in two ways: first, by showing that many structures that had previously been considered verb complements are in fact nominalizations functioning as objects of verbs or objects of prepositions; second, by arguing that nominalizations are themselves derived from noun-complement constructions (the IT + S analysis), and that the same complementizers that operate in verb complementation (that, for...to, POSS...ing, etc.) operate in noun complementation.

In collapsing the two putatively distinct structures, Rosenbaum takes complementation as primary. By "complement" he means an S introduced into the structure as right sister of some head item:
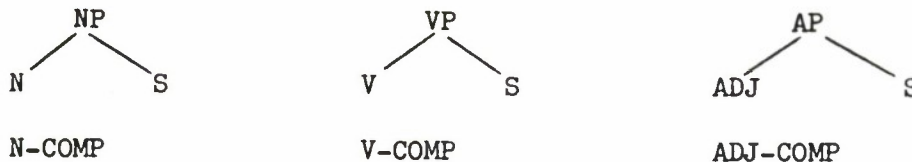
```
      NP                  VP                    AP
     /  \                /  \                  /  \
    N    S              V    S              ADJ    S

   N-COMP              V-COMP              ADJ-COMP
```

The analysis developed subsequently in the present paper takes nominalization to be primary, by which we mean that there is no S involved in these rules which is not directly dominated by NP. The difference is by no means purely notational, since a number of quite distinct substantive claims are involved. For the differences to be made clear, Rosenbaum's views must be summarized in some detail. However, Rosenbaum's 1965 dissertation views are clearly not the same as his current views, and we infer from the Preface to Rosenbaum (1967a) that at least some of his current views are quite similar to ours. In the Preface he writes: "First, the number of clear cases of verb phrase complementation [i.e. V-COMP, above] has diminished to the point where their general existence becomes questionable" (p.ix). The verb complementation paper of UESP (1967) was devoted largely to providing evidence against the existence of verb phrase complementation. In view of Rosenbaum's retraction above quoted, the present paper merely summarizes some of the problems inherent in Rosenbaum's earlier view, since we agree that the distinction between VP and NP complementation is not fully viable.

Two other investigators independently (Wagner (1968) and Bowers (1968)) take a position like that of UESP (1967), arguing that many of the passive and pseudo-clefted examples cited by Rosenbaum are not totally out if the appropriate prepositions are assumed: e.g. What she condescended to was to talk with us is better than *What she condescended was to talk with us; and What Bill tended to was to think big is better than *What Bill tended was to think big (Wagner, 1968). But we certainly

do not agree with Wagner, as will appear in detail below, that
if these prepositions are correctly inserted in the ordering of
rules, then "Rosenbaum's arguments come to nothing" (Wagner,
1968, p.91), since we still reject such examples as Wagner's
(34), <u>To drink beer is condescended to by nine out of ten people</u>,
or even worse, ...<u>is tended to</u>... , which he would, on the
arguments presented, have to accept.  The question of where one
draws the line of grammaticalness is touchy, and presumably
subject in these cases not so much to dialect variation as to
genuine uncertainty on the part of native speakers being faced
with examples of a type so rarely met in normal discourse that
they simply have no clear intuition about them.  It becomes, we
shall argue, a question of strategy in handling data of a type
where decisions about grammaticalness are so shaky.

Rosenbaum's (1967a) classes of VP-Complementation are
illustrated in (10)-(12) [classes and predicates from Appendix
of Rosenbaum (1967a)]:

(10)  Intransitive Verb Phrase Complementation



(a)  The doctor            condescended to examine John.
     [(101)] [A.5.1]
(b)  The doctor            finished       examining John.
     [A.5.2]

(11)  Transitive Verb Phrase Complementation



(a)  They   commanded   the doctor   to examine John. [A.6.1]
(b)  They   found       the doctor   examining John. [A.6.2]
(c)  I      imagined     the doctor   examining John. [A.6.3]
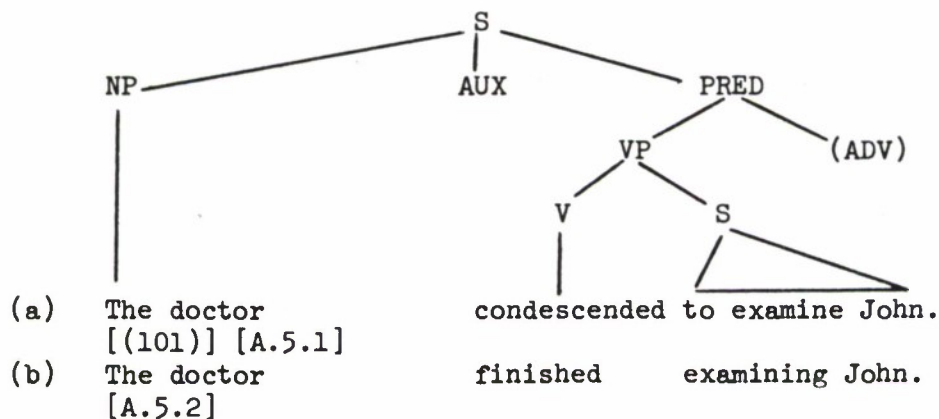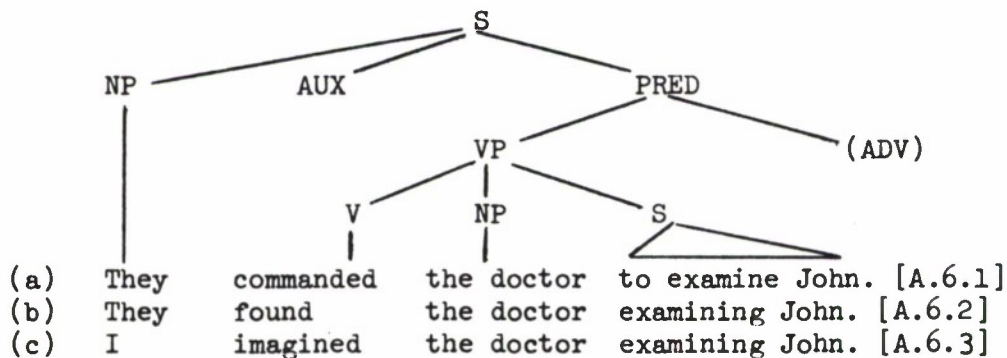
(12)   Oblique Verb Phrase Complementation [like transitive except that the object of the matrix verb is intro-duced by a preposition]

    (a)   I rely on the doctor to examine John.  [A.7]
    (b)   We prevail upon the doctor to examine John. [A.7]

NP complements are characterized by a configuration in which the node NP immediately dominates N + S,

(13)

```
              NP
            / | \
      (DET)  N   S
```
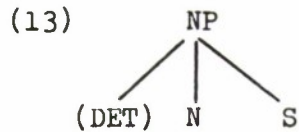
so that any of the NP's in (14) may have this internal structure and be instances of NP complementation:

(14)

```
                    S
          NP              PRED
                        VP        (ADV)
                     /  |  \
                    V (NP) (PP)
                           /   \
                        PREP    NP
```
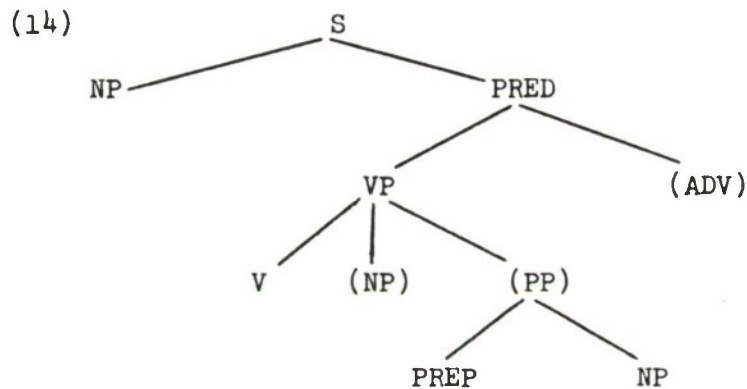
Rosenbaum's classes of NP-Complementation are illustrated in (15) - (18) [classes and predicates from Appendix of Rosenbaum (1965a)]:

(15)   Subject NP complementation

    (a)   That the doctor examined John does not matter.  [A.2.1.1]
    (b)   For the doctor to have examined John seems awful. [A.2.1.2]
    (c)   The doctor's examining John mortified the whole family. [A.2.2]

(16)   Object NP complementation

    (a)   Everybody thinks that the doctor examined John. [A.1.1]
    (b)   We prefer for the doctor to examine John. [A.1.2.1]
    (c)   They believe the doctor to have examined John.  [A.1.2.2]
    (d)   They remembered the doctor's examining John. [A.1.3]

(17) Intransitive oblique NP complementation [The
constituent S is part of a prepositional object
of a verb which has no other object.  The
preposition is deleted before that-S and
infinitivals.]

    (a) They hoped (for) that the doctor would
        examine John. [A.3.1]
    (b) They arranged (for) for the doctor to
        examine John. [A.3.2]
    (c) They approved of the doctor's examining
        John. [A.3.3]

(18) Transitive oblique NP complementation [The
constituent S is part of a prepositional phrase
which complements a verb that has another object.
The preposition is deleted before that-S and
infinitivals.]

    (a) Mary convinced Jean (of) that the doctor
        had examined John. [A.4.1]
    (b) They forced the doctor to examine John.
        [A.4.2]
    (c) They suspected the doctor of examining
        John. [A.4.3]

To argue against the distinction between VP-COMP and
NP-COMP one must have in mind some alternative.  An alternative
for which one might argue is that (10), (11), and (12) are
analyzable as instances of NP-COMP, thereby eliminating the dis-
tinction between NP-COMP and VP-COMP.  This is our understanding
of what Rosenbaum means by the sentence in his Preface (1967a)
asserting that there appear to be few cases of VP-COMP. Such an
argument depends on showing that the criteria by means of which
Rosembaum distinguished the two are in some way faulty criteria.
His criteria were these:

    (a) Behavior of the COMP under the passive rule;
    (b) Behavior under the pseudo-clefting rule;
    (c) Behavior under the extraposition rule;

and we add

    (d) Behavior under pronominalization.

(a) COMP and Passive

Consider first these examples from Rosenbaum (1967a):

(19) (a) Everyone preferred to remain silent.[15.a.1)]
(b) To remain silent was preferred by everyone.
[(15.a.2)]
(c) John tended to play with his little brother
often.  [(15.b.1)]
(d) *To play with his little brother often was
tended by John. [(15.b.2)]

(19.d) is unquestionably bad; but (19.b) is not impeccable, either.
By an oversight, though tend is a paradigm example of VP-COMP
in the text (p.14), it does not show up at all in the lists of
Rosenbaum's appendix:  presumably it belongs with A.5.1,
Intransitive Verb Phrase Complementation with for-to Complementizer.
With these examples, passivization is ungrammatical:

|  | | |
|---|---|---|
| (20) | (a) | *begun |
|  | (b) | *ceased |
|  | (c) | *commenced |
|  | (d) | *condescended (to) |
|  | (e) | *continued |
|  | (f) | *dared |
| To examine John was | (g) | *declined | by the doctor |
|  | (h) | *endeavored |
|  | (i) | *failed |
|  | (j) | *gotten |
|  | (k) | *grown |
|  | (l) | *hastened |
|  | (m) | *managed |
|  | (n) | *proceeded |
|  | (o) | *refused |
|  | (p) | *started |

This observation is significant as a test for a distinction between
VP-COMP and NP-COMP, however, only if there is a class of sentences
comparable to (20) in which passivization is grammatical.  The
relevant class is presumably A.1.2.1 (Object NP Complementation
with for-to complementizer), since that class includes prefer,
which is cited in (19) as a viable example of passivization:

|  | | |
|---|---|---|
| (21) | (a) | ?preferred |
|  | (b) | *borne |
|  | (c) | *demanded |
|  | (d) | ?desired |
|  | (e) | ?disliked |
|  | (f) | ?expected |
|  | (g) | ?feared |
| To examine John was | (h) | ?hated | by the doctor |
|  | (i) | *intended |
|  | (j) | ?liked |

(k)   ?loathed
(l)   ?loved
(m)   ?promised
(n)   *prescribed
(o)   ?requested
(p)   ?required
(q)   *wanted

One cannot easily convince himself that these are fully grammatical.
One can much more readily convince himself that if the verbs of
(20) and (21) are different in respect to the structure of their
complements, the test of passivization certainly does not provide
satisfactory motivation for the distinction.

It appears in general to be true that an infinitival,
in particular a subjectless one, cannot become subject under the
passive rule.  If true, this is an interesting fact, and one which
requires explanation:  e.g. it suggests that if, in the deep
structure of The doctor prefers/demands/desires...to examine John,
there is motivation to assume a deep structure dominance of
to examine John by a node NP, then somehow in the reduction of
that deep structure to the surface infinitival either the NP
node must be removed, or some other device must prevent passiviza-
tion.  We provide an account below of what such a device might
be.  But first consider these examples further:  some sentences
in (21) can be improved by retaining a subject and seeking a
semantic content that is somehow - though it is not clear how -
more appropriate to the structure: e.g.,

    (21')  (a)  For the comprehensives to be given after
              the end of the term is generally preferred
              by the slower students.
        (b)  [with extraposition]  It is intended for
              the better students to finish their
              degrees in three years.

The number of instances where passivization of for-to constructions
with subjects results in a fairly high-grade output is substantial;
if one finds the higher-grade examples persuasive, the conclusion
must be either that complementation and nominalization are distinct
structures, since no amount of tinkering with the sentences of
(20) will produce examples of the quality of (21'),or that there
is some other factor which permits passivization in just these
instances but in no instance where the subject of the infinitival
is deleted.  Tinkering with sentences like those of (20) has been
claimed (by UESP 1967, Bowers 1968, and Wagner 1968) to produce
examples that are significantly better than some rejected by
Rosenbaum, and this claim is certainly correct.  Rosenbaum, in
citing examples like *To think slowly was tended by me, neglected
the preposition that shows up in the slightly better pseudo-cleft
form (Bowers' (1968) example 33) What Bill tended to was to think
big; i.e., the passive, if it exists, is (?) To think slowly

was tended to by me. But in fairness to Rosenbaum, it must be acknowledged that the improvement, in this example and in the others that can be modified in the same way, is not a startling black-and-white up-grading to obvious grammaticality.

If one feels, as we do, that some of the extraposed passives like (21'.b) are close to fully grammatical; that the examples (21) are better with subjects supplied for the infinitivals, but that they are about as bad as (20), taken as they stand; and that the examples (20) are irreparably bad, - then one has a problem in strategy (since the grammar one writes depends, in this instance crucially, on one's conclusion about these examples). One strategy would be to take a hard line on the question of what is grammatical in these instances where the data is so fuzzy. This would force the grammar to assert that It is intended for students to finish in three years is as bad as For students to finish in three years is intended, which is not true, or that To finish in three years is intended is as bad as To finish in three years is managed, which also is not true.

There is a gradation among these examples, however: one might explain the relative persuasiveness of It is intended for the students to finish in three years on the assumption that it is derivatively generated (in the sense of Chomsky, "Some Methodological Remarks on Generative Grammar", Word 17, 1961) from It is intended that the students finish in three years, i.e. an analogy which associates for-to with subjunctive, since for-to corresponds with subjunctive in a wide range of examples: It is important for him to finish in three years/It is important that he finish in three years; I prefer for him to finish in three years/ I prefer that he finish in three years. But verbs like begin, manage, continue, decline, fail,..., not having a corresponding that-S subjunctive, should not, and do not, lend themselves to this analogical extension at all.

This hard line strategy would require in the present grammar that we allow passivization just in case there has been no reduction to infinitival form. Without now anticipating our subsequent detailed analysis of infinitivals, a device which would block all moving of infinitivals into passive subject would be to place the rules of infinitival reduction after the rule of passive subject placement, formulating them in such a way as to exclude reduction if the embedded sentence had been made subject of a passive verb. This device would be unnatural, however, since with some predicates such as tragedy, important, an infinitival as subject is unobjectionable: For her to have married so young was a tragedy that we all deplored; For them to wear a lifejacket will be important to their survival if they get shot down. It would also be ad hoc, since it would require repetition of the same constraint in a number of rules determining infinitival reduction.

Alternatively, a device which is also ad hoc but much less unnatural, since passivization requires a number of special constraints not required by active subject placement anyway, would be to constrain passivization so as not to move any sentential NP into passive subject unless that sentence contained an AUX: i.e. unless it were still a "real" sentence, not an infinitival reflex of one. But there is independent motivation to place the rule TO-REPLACE-AUX, which establishes infinitival form, <u>after</u> the case placement rules, whereas the constraint just suggested will filter out just the right examples only if the passive rule follows TO-REPLACE-AUX. Since we believe we have fairly strong reasons to treat passivization along with case placement in general, and since the case placement rules must precede TO-REPLACE-AUX, the suggested constraint to "real sentences" cannot serve to block passivization in these instances.

A third alternative is to block only <u>subjectless</u> infinitivals from passivizing. As noted above, it is the subjectless infinitivals which are consistently bad when passivization of the matrix verb puts them into subject position - i.e. the examples (21), as distinct from (21') where the infinitivals have subjects. A compromise between a totally "hard line" position, then, and the Bowers/Wagner/UESP (1967) position, is to block passivization under the condition that the would-be sentential passive subject is lacking its own subject, thereby admitting (21'), but excluding (20) and (21). That, after much discussion, is the consensus solution of the present grammar. It is ad hoc in that the passive rule must have a condition that blocks passivization of subjectless infinitivals. It is also unnatural in view of the fact that the rule does not otherwise have to look at the internal structure of the NP that is to be moved to passive subject. But it correctly reflects our intuitions about the set of grammatical sentences.

(b) COMP and PSEUDO-CLEFT, EXTRAPOSITION

Behavior of the complement under passivization, then, turns out to be no satisfactory justification for the putative distinction between VP-COMP and NP-COMP. Consider, now, the second basis, pseudo-clefting:

(22) (a) 1. I hate you to do things like that. [Rosenbaum (1967a)(10.a.1)]
2. What I hate is for you to do things like that. [10.a.2]

(b) 1. We prefer you to stay right here. [10.b.1]
2. What we prefer is for you to stay right here. [10.b.2]

(c) 1. I defy you to do things like that. [10.c.1]
    2. *What I defy is for you to do things like that. [10.c.2]

(d) 1. We tempted you to stay right here.
    2. *What we tempted was for you to stay right here.

The pseudo-clefting test depends on the assumption that what is clefted is an NP, a claim which is supported by the third test, extraposition, which indicates that (22.a) and (22.b) contain NP's that can be extraposed, whereas (22.c) and (22.d) do not:

(22') (a) I hate (it) very much for you to do things like that. [(11.a)]
    (b) I prefer (it) very much for you to stay right here. [(11.b)]
    (c) *I defy (it) very much for you to do things like that. [(12.a)]
    (d) *We tempted (it) very much for you to stay right here. [(12.b)]

But of course pseudo-clefting also depends on the assumption that what is clefted is a constituent; one of the surprising aspects of Rosenbaum's book is that while he is the scholar who first clarified the distinction between They expected the doctor to examine John and They persuaded the doctor to examine John (discussed by Chomsky (1965), pp. 22-23), he nonetheless fails to note here that the fact about (22.c) and (22.d) which blocks pseudo-clefting, and extraposition, is that neither for you to do things like that nor for you to stay right here is a constituent. The difference between (22.a-b) and (22.c-d), already noted as the distinction between (9.b') and (9.a'), is precisely that between expect and persuade discussed by Chomsky. That is, for these examples the question of VP-COMP vs. NP-COMP is simply irrelevant. The distinction between expect and require, which is even clearer than, and exactly like, the distinction between expect and persuade, is the following:

The sentence (23.a) is cognitively synonymous with the passive (23.b):

(23) (a) They expected the doctor to examine John.
    (b) They expected John to be examined by the doctor.

But the sentence (23.c), identical with (23.a) in surface structure, is not synonymous with (23.d):

(23) (c) They required the doctor to examine John.
    (d) They required John to be examined by the doctor.

(23.c,d) are paraphrased by an explicit Dative in (23.d,f):

(23) (e) They required of the doctor that he examine John.

(f) They required of John that he be examined by the doctor.

The examples with require (or persuade) have, minimally, a deep structure that includes an animate object in addition to a sentential object:

(23) (c')

```
                    S
         ┌──────────┼──────────┐
        NP         AUX         VP
         │              ┌───────┼───────┐
        they           V      NP      (NP)
                       │      ╱╲        │
                    require the doctor  S
                                       ╱──────────╲
                                  the doctor examine John
```
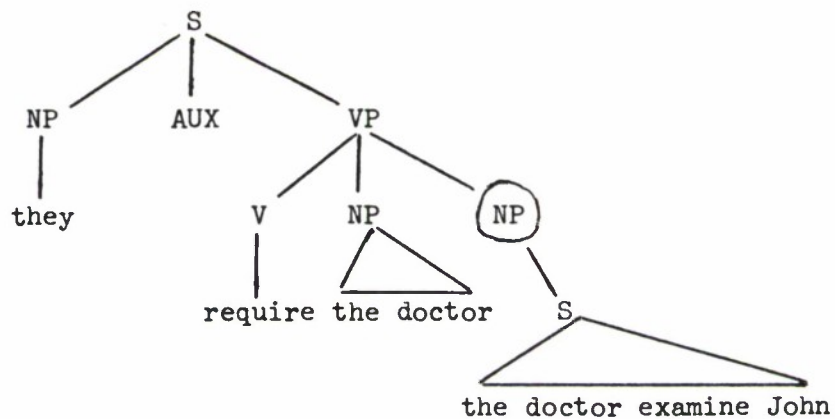
The examples with expect (or hate or prefer) have no such animate NP object in addition to their sentential object:

(23) (a')

```
                    S
         ┌──────────┼──────────┐
        NP         AUX         VP
                            ┌───┴───┐
                            V      (NP)
                            │        │
                         expect      S
                                    ╱────╲
                            the doctor examine John
```
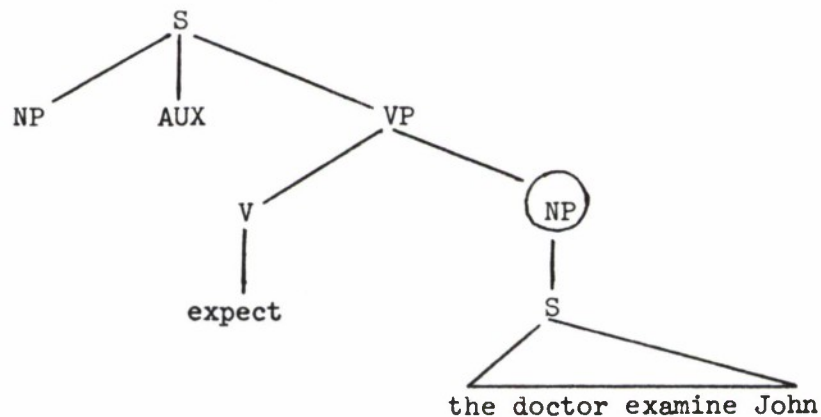
In short, the pseudo-clefting argument that supports the circled NP of (23.a') is irrelevant to the question of whether (23.c') should have the circled NP or not.

Although pseudo-clefting is not an argument appropriate to the distinction between the examples (22), it is relevant to the discussion of other examples of the putative contrast between NP-COMP and VP-COMP, in fact to the same examples as those to which the passive test was adduced.  Bowers (1968) claims that although *To see his friend was rejoiced at by him is not grammatical, What he rejoiced at was to see his friend [(13) and (14)] is.  Bowers is not quite so happy with What he tempted Bill to was to be interviewed by the company [(17)], but he is not willing to state categorically that it is ungrammatical; similarly What they condemned him to was to die [(23)].  If grammatical, such examples dispute the NP-COMP/VP-COMP distinction proposed by Rosenbaum.

The problem with pseudo-clefting as a test is that there are numerous examples which have no corresponding grammatical non-clefted infinitival cognates:  e.g.

(24)  (a)  What I look forward to is for him to break his neck.
      (b)  *I look forward (to) (for) him to break his neck.
      (c)  I look forward to his breaking his neck.


      (d)  What I would really enjoy is for people to leave me alone.
      (e)  *I would really enjoy (for) people to leave me alone.


      (f)  What I deplore is for idiots to be running the country.
      (g)  *I deplore for idiots to be running the country.
      (h)  It is deplorable for idiots to be running the country.


      (i)  What I propose is that they quit sticking their noses in  the department's affairs.
      (j)  What I propose is for them to quit sticking their noses in the department's affairs. [Perhaps not fully well-formed, but derivatively related to (i).]
      (k)  *I propose for them to quit sticking their noses in the department's affairs.

> (1)  What I require is that he do better.
> (m)  What I require is for him to do better.
>      [Perhaps not fully well-formed, but deriva-
>      tively related to (1).]
> (n)  *I require for him to do better.
> (o)  I require him to do better.

(24.a) seems impeccable, but (24.b) is totally out.  (24.d) is good, but (24.e) quite dubious.  (24.f) is impeccable, but only rarely is (24.g) claimed to be grammatical (e.g. by the Kiparskys (1968)).  The remaining sets involve the possibility of a deriva-tive relation to a subjunctive.  It is hard to see how data like these can be used to support or deny the NP-COMP/VP-COMP distinc-tion.  It is certainly legitimate to use evidence from pseudo-clefting to argue for one or another element of content in the deep structure of an infinitival:  e.g., we claim that the existence of (25.a) argues for a subjunctive in the underlying form of (25.b), even though there is no corresponding form (25.c):

> (25)  (a)  What I especially want is that my daughter
>            grow up to be a gracious lady.
>       (b)  I especially want my daughter to grow up
>            to be a gracious lady.
>       (c)  *I especially want that my daughter grow
>            up to be a gracious lady.

But to argue from the pseudo-cleft that there must be a certain structural distinction in the available non-clefted cognates claims that we understand the conditions under which pseudo-clefting is permitted; the data of (24) testify that we, at least, do not understand these conditions.

(c)  COMP and PRONOMINALIZATION

The fourth criterion, pronominalization, not proposed by Rosenbaum, tends to support the circled NP of both (23.a') and (23.c'):

> (26)  (a)  Mary expected the doctor to examine John,
>            and I expected it, too.
>       (b)  Mary required the doctor to examine John,
>            and I required it of him, too.

But pronominalization provides contrary evidence in other examples:

(27) (a)  *Mary $\left\{\begin{array}{l}\text{forced}\\\text{commanded}\\\text{ordered}\\\text{told}\end{array}\right\}$ the doctor to

examine John, and I $\left\{\begin{array}{l}\text{forced}\\\text{commanded}\\\text{ordered}\\\text{told}\end{array}\right\}$

him (into) it, too.

(b)  ?The doctor condescended to examine John,
and the other specialist condescended to
it, too.

(c)  ?I prefer to be examined by osteopaths,
and Mary prefers it, too.

(d)  ?John tends to like blondes, and I tend
toward it, too.

The examples (27.a) are all bad, except perhaps force with into;
(27.b,c,d) are extremely questionable, only really acceptable in
the form A condescends/prefers/tends to do X, and B tends to do
it, too.  It appears, in fact, that there are no very satisfactory
examples of it-anaphora where the item replaced is an infinitival
complement:  this fact strongly suggests that the derivation of
infinitival complements is not a matter of simply replacing a
sentence by a cognate infinitival form - that several steps are
involved in the derivation, and that in the course of this deriva-
tion the underlying sentence is mutilated in such a way as no
longer to be recognizable as an NP, for pronominalization, or
else somehow the necessary conditions for pronominalization were
not present in the first place.  Since the present grammar does
not attempt to deal with the PRO-ing of sentences, a solution to
this problem continues to be outstanding, nor do we have any very
clear notion of what solution might successfully be proposed.


Returning, now, to the main line of argument:  Are there
solid syntactic grounds for the distinction between VP-COMP and
NP-COMP?  The criteria which have been proposed fail to make the
distinction consistently.  The claim that there are at least two
distinct structures, namely those with a dative (23.c') and those
with only a sentential object (23.a'), is persuasively motivated
by both passivization and pseudo-clefting, but that distinction is
independent of the distinction in question.  The fact that passivi-
zation is ungrammatical with subjectless infinitival complements
(20) and (21) may or may not be correctly analyzed as a function
of a condition on the passive rule, but if the facts are as we
have outlined, they do not support the distinction in question.
What, then, remains as a basis for the distinction between VP-COMP
and NP-COMP?

It seems to us that there is one kind of argument for VP-COMP, not raised by Rosenbaum, which is difficult to eliminate. Consider the semantic interpretation of the following sets:

(28) (a) He forgot to study the lesson.
 (b) He forgot that he was to study the lesson.
 (c) He forgot that he (had) studied the lesson.

(29) (a) He avoided studying the lesson.
 (b) He neglected to study the lesson.

In (28), it seems clear that neither (b) nor (c) is entailed by (a), but any derivation which assumes a deep structure NP-sentential object of _forget_ will encounter grave difficulty avoiding the claim that something like (b) or (c) is indeed entailed by (a). In such sentences as (28.a), involving a contrary-to-fact embedded sentence, a way out, though not otherwise motivated, is to assign a subjunctive aspect to the verb of the embedded sentence, thus distinguishing between the deep structure of (28.a) and that of (28.b,c). In some closely similar sentences, there is independent justification for subjunctive: in particular, example (25) above. Although (25.c) does not exist, (25.a) strongly suggests that (25.c) is indeed the deep structure obligatorily reduced to (25.b): it would otherwise be quite impossible to explain the subjunctive form of the pseudo-cleft (25.a). Since there is not comparable pseudo-cleft form for (28.a), the assumption of subjunctive to account for the contrast within (28) can be argued only by analogy with (25). The examples (29) contain the same problem of interpretation, but they permit neither the non-subjunctive contrasts analogous to (28.b,c) nor pseudo-cleft forms analogous to (25.a), although the sentences (30) are at least readily interpretable:

(30) (a) *?What he avoided was that he study the lesson.
 (b) *?What he neglected was that he study the lesson.

Since there is at least a not-totally-unreasonable solution to the problem posed by (28), and since there appear to be no other persuasive arguments in favor of VP-COMP, we set this argument aside also as insufficient to justify the distinction between VP-COMP and NP-COMP.

(d) Nominalization versus Complementation: Conclusion

We conclude that the distinction between NP-COMP and VP-COMP is not a necessary or revealing one. The only alternative is not, however, that all "complement" structures are what Rosenbaum (1967) calls Noun Phrase Complementation. Our claim is that they are not complements at all, but nominalizations: i.e., they have the deep structure (31):

(31)

```
        NP
        |
        S
```
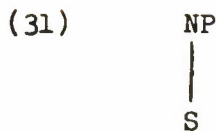
To argue that they are not complements, we must now consider Rosenbaum's arguments that the structure of NP-Complementation is (32):

(32)

```
            NP
          / |  \
       (D)  N    S
            |
            it
```
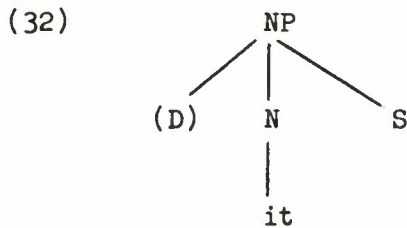
## 4.   IT + S

Rosenbaum's (1967a) arguments for assuming _it_ in the deep structure are these:

(a)   The rule of Extraposition moves sentential subjects and objects out of their deep-structure position and adjoins them at the end of the matrix sentence. When moved out in this way, there is evidence that such sentences are no longer dominated by NP but rather are adjoined directly under the matrix S. In the original position of the extraposed sentence, the expletive _it_ appears in the surface structure.

(b)   The _it_ which appears in the surface structure is not the same as the _it_ of pronominalization, since it can't be questioned or relativized; i.e., this _it_ is a dummy like the _it_ of _It's raining_.

(c)   NP-Complementation and VP-Complementation share most rules, in Rosenbaum's analysis, but not the rule of extraposition.  E.g., _I hate (it) very much for you to do things like that_ is NP-Complementation, and grammatical under extraposition (from object); but *_I defy (it) very much for you to do things like that_ is ungrammatical, a fact which Rosenbaum explains by claiming that it is VP-Complementation, which is not subject to extraposition.

(d)   Finally, the statement of complementizer transformations is simplified by making the complementizer a feature on _it_ and spreading it into the sentential complement.

The four arguments above are reconstructed from Rosenbaum's "Defense of the Phrase Structure Rules" (pp. 9-23). A fifth argument, stated by Lakoff (1966c) is

> (e) If one argues that the <u>it</u> is introduced transformationally in the proper environments, it is virtually impossible to define what is meant by "the proper environments."

(a) is clearly a fact, but not an argument unless it is indeed "virtually impossible" to state the proper environments for transformational insertion of <u>it</u>. (b) is also a fact, but equally statable of an <u>it</u> inserted by a non-anaphoric transformational rule. (c) <u>is</u> a valid argument, but it depends on the validity of the NP-COMP/VP-COMP distinction, as stated by Rosenbaum; it is not specific to IT + S, since the distinction between NP-COMP and VP-COMP can equally well be made as between S dominated by VP, and S dominated by NP. From (c) all that is clear is that some basis must be provided to permit extraposition in the right instances, which is true of (e) also. (d) is a weak argument because it depends on Rosenbaum's preference for a particular formalism; if it turns out that the Kiparskys (1968) are right, and that the complementizers come from a variety of deep sources, the formalism (even if it were the best possible) could not be employed anyway. So only (e) is a real argument. Lakoff acknowledges that the environment in which extraposition from subject occurs is readily statable; the one that he finds "virtually impossible" to state is the environment of "vacuous extraposition from object." But at the time of presenting his arguments he was unaware that the only instances of extraposition from object are factives. The notion "factive" is independently motivated, and it provides precisely the environment, fairly easily stated (although a few items must be marked with exception features), that Lakoff found difficult to state.

There appears, then, to be little solid justification for the IT + S analysis, and we have accordingly rejected it.


## 5. Extraposition, IT-Replacement, and Second Passive

To account for the relationships between sentences like (33),

> (33) (a) That John will find gold is certain.
>      (b) It is certain that John will find gold.
>      (c) John is certain to find gold.

> (d) *That John found gold happened.
> (e)  It happened that John found gold.
> (f)  John happened to find gold.

a rule of Extraposition (deriving (33.b) from (33.a), and (33.e) from (33.d)) has been widely assumed (e.g. Ross (1967c), Rosenbaum (1967a), and Lakoff (1965)); and a rule of IT-replacement (deriving (33.c) from (33.b), and (33.f) from (33.e)) was proposed by Rosenbaum (1967a) and appears to be generally assumed, though the form of it varies (see, for example, discussion of the problem in Kiparsky (1968), in particular footnote 6).

   A class of sentences that require a similar derivation (and incidentally thereby reduce the candidates in (20) for analysis as VP-Complementation) is the class of so-called "transparent" predicates (i.e. selectional restrictions determined by the verb of the complement):

> (34)  (a) *That John got tired began.
>       (b) *It began that John got tired.
>       (c)  John began to get tired.
>
> (35)  (a) *That John was a tyrant continued.
>       (b) *It continued that John was a tyrant.
>       (c)  John continued to be a tyrant.
>
> (36)  (a) *That John worked hard ceased.
>       (b) *It ceased that John worked hard.
>       (c)  John ceased to work hard.

Our derivation of (33) - (36) by a process of "raising to subject" is discussed below.

   Another class of sentences that seem to require a similar derivation is that of (37):

> (37)  (a)  They believe that Bill is intelligent.
>       (b)  They believe Bill to be intelligent.
>       (c)  Bill is believed to be intelligent.

Lees (1960) labeled (37.c) as the "Second Passive". He correctly observed (p. 63) that "It is as though the passive transformation could apply either to the whole That-Clause nominal as subject [generating That Bill works hard is said (by someone)] or only to the internal nominal subject of the That-Clause [generating (37.c)]". Our analysis of such sentences in Section III is essentially the same as Lees', with the additional observation about to-insertion of the Kiparskys which provides a general account of why the form of the that-clause is infinitival after the subject has been lifted up into the matrix sentence by a process of "raising to object", and then taken as the passive subject by the regular subject placement rule.

Rosenbaum (1967a) has claimed that there is no need for a second passive rule, if the grammar contains rules for extraposition and it-replacement. His (excessively ingenious) derivation of sentences like (37), contrary to Lees' clearly correct intuition, is the following:

(38) (a)  *One says it-for Bill to work hard.
     (b)  *It-for Bill to work hard is said.
          [Passive of (a)]
     (c)  *It is said for Bill to work hard.
          [Extraposition on (b)]
     (d)  *Bill is said for to work hard.
          [It-replacement on (c)]
     (e)   Bill is said to work hard. [For-deletion]

[Perhaps it should be noted, though irrelevant to these arguments, that the subject of the matrix sentence cited as "one" above is not used by either Lees or Rosenbaum; Lees uses "people" as the deletable subject, Rosenbaum uses "they". Our arguments that "one" is the deletable indefinite subject appear in Section III.]

If the other rules indeed worked as claimed by Rosenbaum-- e.g. if IT+S were well-motivated, if for-to infinitivalization were well-motivated as the deeper structure of all to- infinitivals, and if the distinction between VP-complementation and NP-complementation were sound -- then a counter-intuitive derivation like (38) might still be justified, as Rosenbaum tried to justify it, by the fact that such rules are independently needed and might therefore just as well be used to account for this apparently irregular construction. Since none of these conditions appear to hold firmly, we have sought a different analysis. Since we have a rule of subject placement, both passive and active, the most natural solution is an optional rule preceding subject placement which raises the subject of an embedded sentence into the subject position of the matrix sentence, in instances like (33.c), (33.f), (34.c), (35.c), and (36.c): taking (33.c) as typical, these have the (simplified deep structure (39):

(39)



"John is certain to find gold."
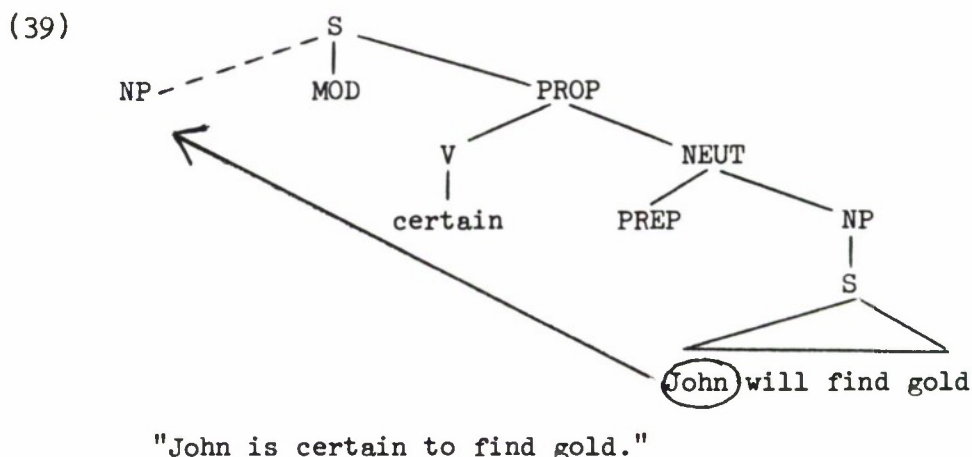
Similarly, an optional rule can raise the subject of an embedded sentence into the object position of the matrix sentence, in instances like (37.b), and then Subject Placement will move this object into subject of the matrix:

(40)
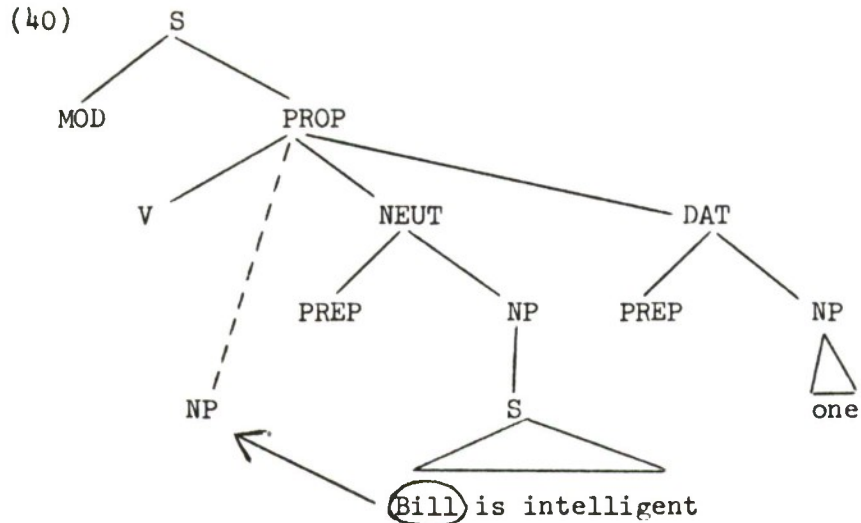


"One believes Bill to be intelligent."

(41)
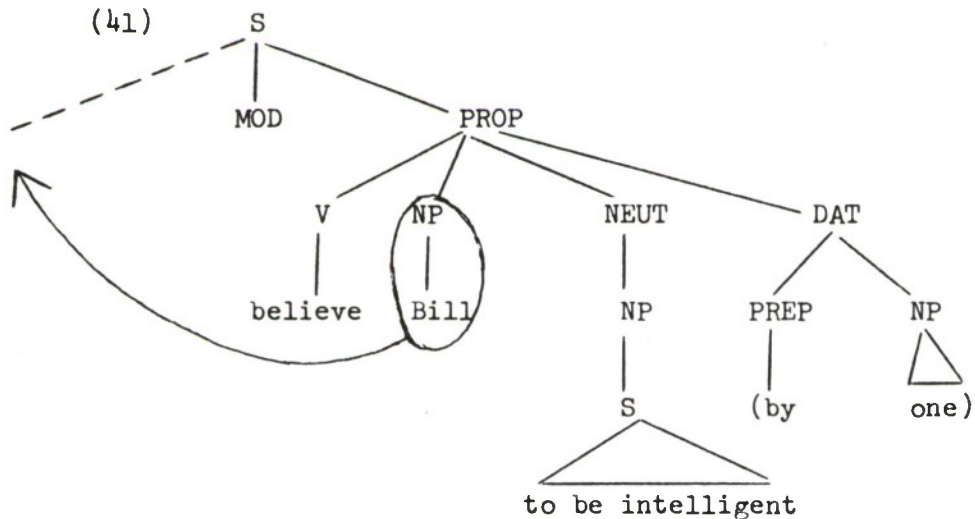


"Bill is believed to be intelligent."

With all but one small set of verbs of this class, all steps in the derivation are grammatical. The exceptions - say, rumor, repute - have one ungrammatical step for which we have no account:

(42)  (a)  They say - Bill is intelligent.
      (b)  *They say - Bill to be intelligent.
      (c)  Bill is said to be intelligent.

The details of this derivation are presented in Section III.D.6,7.
We anticipate them here in general outline to show how our treat-
ment of this class of examples is related to other studies.  In
particular, our analysis obviates both a second passive rule,
while formalizing precisely the intuition of Lees (1960) quoted
above, and relates the phenomenon of It-replacement to a general
set of conditions for subject placement.


6.  The Erasure Principle

        It is a general principle of transformational theory that
deletions in the course of a derivation must be recoverable.
Otherwise any derivation with a deletion would be infinitely
ambiguous.  The kind of deletion that commonly occurs in comple-
ment structures is erasure under an identity condition: e.g.
for a whole host of reasons the deep structure of a sentence
like He tried to leave is assumed to contain two occurrences of
the subject he:  He tried + He AUX leave.  The subject of the
embedded sentence is erased by the higher identical subject,
in this instance.  Rosenbaum (1967a) found it necessary to develop
an erasure principle which would guarantee for his derivations
that there could be no ambiguity as to which was the erasing NP.
The principle cannot be simply that the first NP to the left is
responsible for the erasure, even though such a principle would
be a first approximation which would work well for such sentences
as (43):

        (43)  (a)  They tempted John to leave early.
                   [Rosenbaum (1967a) ex. 18.a]
              (b)  We forced John to ignore his work.
                   [Rosenbaum (1967a) ex. 18.b]

The consideration of purpose clauses eliminates this principle,
since it would require that "boat" and "car" be the erased
subjects in (44):

        (44)  (a)  I sold the boat to save money.
                   [Rosenbaum (1967a) ex. 19.a]
              (b)  She took the car to buy bread.
                   [Rosenbaum (1967a)ex. 19.b]

Rosenbaum sets forth a principle of minimum distance (measured by
counting the number of branches in the path connecting two nodes)
which eliminates the problem of (44), since the subject of the
purpose clause is more distant from the matrix object than from

the matrix subject (because in Rosenbaum's tree there is an additional Pred-Phrase and VP node dominating the object).

Consider, however, the status of the principle of minimum distance as applied to Fillmorean trees:

(45)  (a)
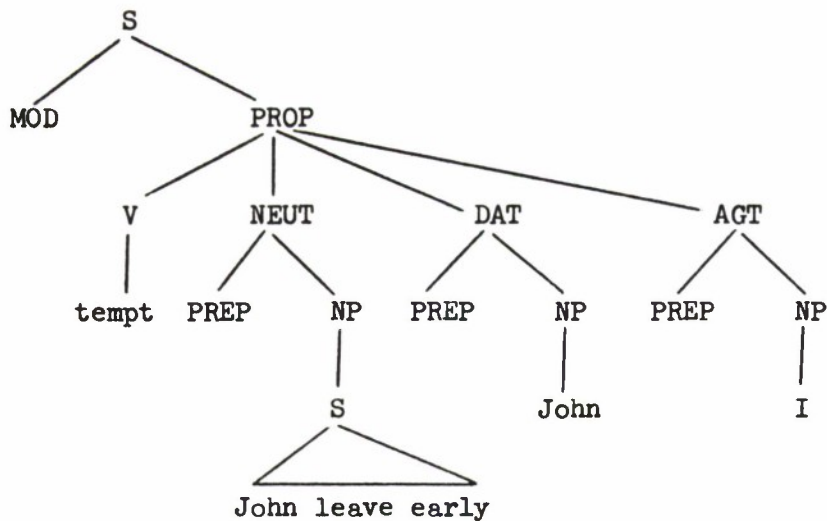


(b)
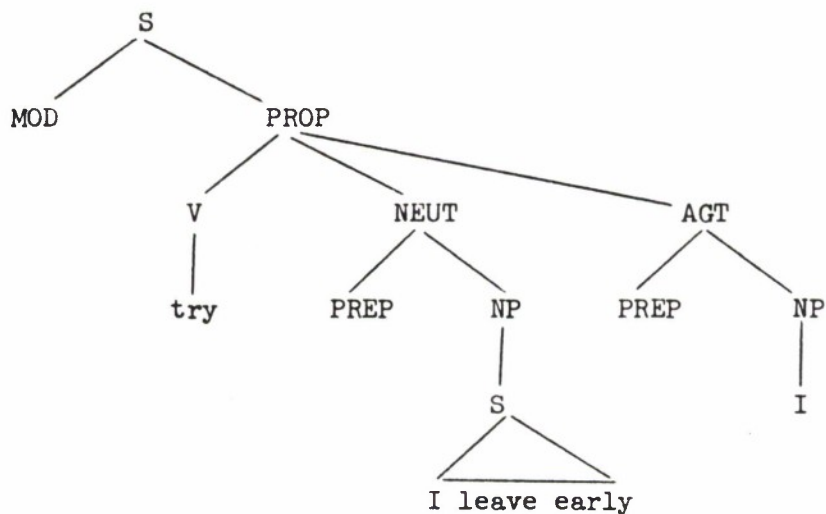


For several reasons, the rule of EQUI-NP-DEL, which erases the embedded S's in (45), must apply fairly early - before the Case Placement rules that move the appropriate NP into surface subject

position:  in particular, because it must precede raising of
the subject of embedded S's to object of matrix as in (40),
in order to allow normal reflexivization in (46) but block it
in (47):

(46)  John believes himself to be intelligent.

(47) *John wanted himself to work hard.
     [in the sense of "John wanted to work hard."]

If this rule is prior to the Case Placement rules, then the
distance of the erasing NP is identical in (45.a), where the
Dative NP is responsible, and in (45.b), where the Agent NP is
responsible.  We have, therefore, stated the rule in such a way
that the erasing NP is identified by the case node dominating it,
and we have replaced the principle of minimum distance by the
principle that an identical dative has erasure priority over
an identical agent.

     If it were not necessary for EQUI-NP-DEL to precede the
Case Placement rules, as we believe it is, there would be a very
natural way to capture Rosenbaum's principle within this Frame
of reference.  The distances would come out right because of the
elimination of certain nodes in the objectivalization rule,
nodes which must be eliminated for totally independent reasons
(see discussion in BASE RULES).  Consider the structures (45):
these are the structures as they exist prior to the application
of the rules of subjectivalization and objectivalization early
in the cycle:  <u>after</u> the application of those rules, the struc-
tures are as in (45'):

(45')  (a)

(b)

```
                          S
            ┌─────────────┼──────────────────┐
           NP            MOD               PROP
            │             │            ┌─────┴────────┐
            I            AUX           V            NEUT
         [+AGT]                        │          ┌───┴──────┐
                                      try        PREP        NP
                                                             │
                                                             S
                                                            ╱ ╲
                                                     I leave early
```
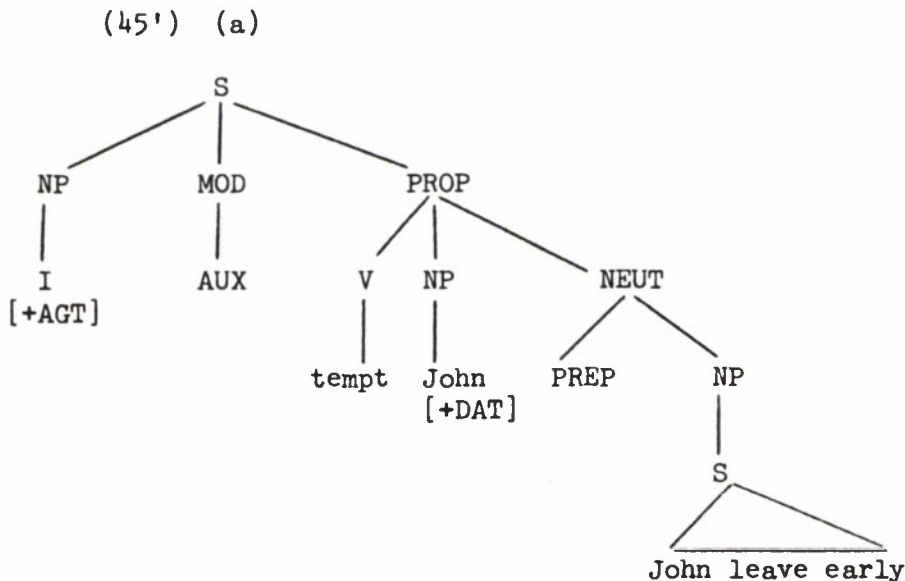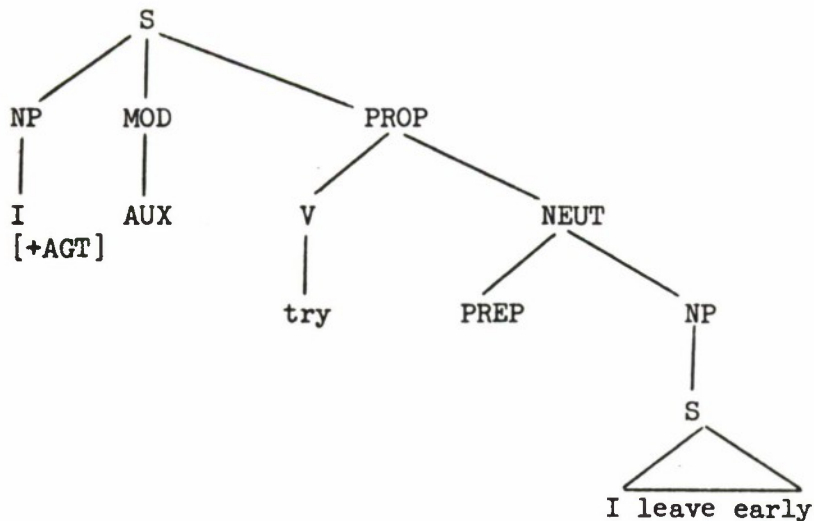
In these trees, by Rosenbaum's principle of branch-counting to
determine minimal distance, the subject of the embedded sentence
is one branch closer to the Dative than to the subject of the
matrix sentence. The principle therefore would make the right
decision in these cases.

A sentence that Rosenbaum's principle and our own
Dative/Agent principle both fail to explain is (48):

(48) He promised us to leave at once.

The sentence is perhaps only marginally grammatical
anyway; if it, and others like it, are fully grammatical, then
the verb itself must be marked for the erasing condition which
it requires. Or some other general condition, different from
either Rosenbaum's or ours, must be found. But the example is
suspect on another score: if our formulation of the structures
(45') is indeed correct, where the principle of minimum distance
works really because the Dative has been objectivalized--which
in turn was motivated by the requirement of the passive form of
(45'.a) John was tempted to leave early, then it should be the
case that the passive of (48) is We were promised to leave at
once, which is clearly ungrammatical. From this evidence, one
must conclude that the structure of (48) is somehow radically
different from that of the examples that are relevant to the
principle of minimum distance. A possible conclusion is that
(48) is a simple blend of the two constructions He promised us
that he would leave at once and He promised to leave at once
both of which are fully grammatical and are generated with no
special problem by the present grammar, in ways discussed sub-
sequently under Section III.D.5.

III.   THE PARAMETERS OF NOMINALIZATION

    A.   Factive/NonFactive
    B.   Sentential/NonSentential
    C.   Emotive/NonEmotive
    D.   Infinitivalization
    E.   Gerundive/NonGerundive
    F.   Stative Infinitival
    G.   Deep Structure Constraints
    H.   Surface Structure Constraints
    I.   Miscellaneous Exception Features

A.   Factive/NonFactive

    1.   Syntactic Justification of the Distinction
    2.   Criteria for Factivity
    3.   The Abstract Instrumental

1.   Syntactic Justification of the Distinction

    The Kiparskys (1968) provide the following lists of factive
and non-factive predicates (MS pp. 1 and 4):

(49)  | With factive subjects | With non-factive subjects |
|---|---|
| significant | likely |
| odd | sure |
| tragic | possible |
| exciting | true |
| relevant | false |
| | |
| matters | seems |
| counts | appears |
| makes sense | happens |
| suffices | chances |
| amuses | turns out |
| bothers | |

| With factive objects | With non-factive objects |
|---|---|
| regret | suppose |
| be aware (of) | assert |
| grasp | allege |
| comprehend | assume |
| take into consideration | claim |
| take into account | charge |
| bear in mind | maintain |
| ignore | believe |
| make clear | conclude |
| mind | conjecture |
| forget (about) | intimate |
| deplore | deem |
| resent | fancy |
| care (about) | figure |
| | know |
| | realize |

[Know and realize are asserted to be semantically factive, syntactically non-factive.]

The distinction is supported by the following kinds of syntactic evidence:

   a.  Only factives allow either that-S or Fact that S:

      (50)  (a)  The fact that she solved the problem
                 is significant.
            (b)  *The fact that she solved the problem
                 is likely.

            (c)  I regret the fact that she solved the
                 problem.
            (d)  *I believe the fact that she solved the
                 problem.

   b.  Only factives allow the full range of gerundive
       constructions:

      (51)  (a)  Her having solved the problem is
                 significant.
            (b)  *Her having solved the problem is likely.

            (c)  The professor's not knowing the answer to
                 that question was surprising.
            (d)  *The professor's not knowing the answer
                 to that question was true.

            (e)  I regretted her having contemplated her
                 navel for so long.
            (f)  *I asserted her having contemplated her
                 navel for so long.

   c.  Most non-factives allow raising the subject of the
       constituent S to subject of the matrix S [Rosenbaum's
       IT-Replacement; in the present grammar simply one of
       the options permitted in the early subjectivalization
       rule, governed by the rule feature [RAIS-SUBJ]
       discussed under Section D below], but none of the
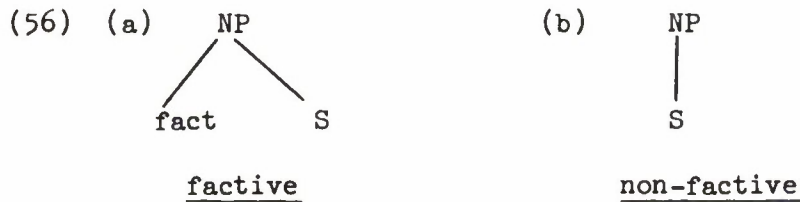       factives do:  [Examples (52) from Kiparsky (1968)
       MS p. 3]

      (52)  (a)  It is likely that he will accomplish even
                 more.
            (b)  He is likely to accomplish even more.

    (c)  It seems that there has been a snowstorm.
    (d)  There seems to have been a snowstorm.

    (e)  It is significant that he will accomplish
         even more.
    (f)  *He is significant to accomplish even more.

    (g)  It is tragic that there has been a snowstorm.
    (h)  *There is tragic to have been a snowstorm.

d. Extraposition is optional with sentential subjects of factives, but obligatory with sentential subjects of non-factives: [Examples from Kiparsky (1968) MS p. 4]

  (53) (a)  That there are porcupines in our basement
          makes sense to me.
      (b)  It makes sense to me that there are
          porcupines in our basement.

      (c)  *That there are porcupines in our basement seems
          to me.
      (d)  It seems to me that there are porcupines in our
          basement.

e.  "Vacuous extraposition from object" is optional with factives, but disallowed with non-factives; it is obligatory with a small sub-set of factives:

  (54) (a)  I regret that she lives far away.
          [Factive]
      (b)  I regret it that she lives far away.
          [Optional]

      (c)  *I hate that she lives far away.  [Factive]
      (d)  I hate it that she lives far away.
          [Obligatory]

      (e)  I suppose that she lives far away.
          [NonFactive]
      (f)  *I suppose it that she lives far away.
          [Disallowed]

f. Only non-factive predicates allow what the Kiparskys non-committally call the "accusative and infinitive construction", which turn out to be infinitival reductions like any others except that they must be stative:

(55) (a) We assumed the quarterback to be
         responsible.
     (b) *We ignored the quarterback to be
         responsible.

     (c) He supposes himself to be competent.
     (d) *He grasps himself to be competent.

A number of the non-factives disallow this construc-
tion also -- the Kiparskys note that charge is one
such:  in our dialects intimate is another; and for
many speakers also anticipate, emphasize, and
announce, which are both factive and non-factive.
But in any case, none of the factives allow this
construction.

The deep structure proposed by the Kiparskys for factive
and non-factive nominalizations is (56):

(56) (a)        NP                      (b)        NP
              /   \                                 |
           /        \                               |
        fact         S                              S

          factive                           non-factive

From the point of view of our "Fillmore-cum-Lexicalist" base, the
S in (56.a) is an NP-object of fact, as in (4.a).


2.  Criteria for Factivity

        It appears that the full range of the Kiparskys' observa-
tions can be captured by a feature [+/-FACT], a strict-subcategorial
feature specifying that the predicate is compatible with the noun
fact as a realization of the case NEUT in its case frame.  All
items which disallow factive objects but accept sentential objects
are marked [-FACT], [+/-S].  This is the class of non-factive
predicates.  All items which allow factive objects are marked
[+/-FACT], [-S].  This is the class of factive predicates.  They
do not accept sentential subjects or objects at all:  those surface
structures in which embedded sentences appear to occur really
occur as objects of the noun fact, which is deletable (as proposed
by the Kiparskys) by the rule of FACT-DEL.  Finally, those items
which allow both factive and non-factive objects are marked
[+/-FACT], [+/-S] -- e.g., listed by the Kiparskys, anticipate,
acknowledge, suspect, report, remember, emphasize, announce,
admit, deduce.  But there is no need, as they propose, to list these
each as two different verbs (though not, they agree, unrelated),

since we can redundantly specify that [+FACT] → [-S], and
[+S] → [-FACT]. Under the convention of obligatory specifica-
tion in our lexicon, and these redundancy rules, only the
permitted clusters of features will emerge.

The remaining problem is to find a diagnostic for non-
factivity. Those predicates which should be marked [+/-FACT]
are easily diagnosed simply by testing whether or not they
allow "the fact that S" as subject (or object, as appropriate).
Those which should be marked [-FACT] are also easily diagnosed,
by the converse of the test for factivity. But how does one
determine that a clausal object of a verb which also allows
"the fact that S" is not an instance of deleted "the fact"?
That is, given (57),

   (57) (a) He reported the fact that she had committed
        the crime.
      (b) He reported that she had committed the crime.

how does one determine that <u>report</u> is [+/-FACT, [+/-S] rather
than simply [+/-FACT], [-S]? The Kiparskys point to a subtle
semantic contrast between the factive and non-factive interpreta-
tions of sentences like (57.b). They claim that factive gerundives
derive only from deep structure "fact that", and infinitivals
only from deep structure non-factives, resulting in the contrasting
interpretations of (57.b):

   (57') (b) FACTIVE: He reported her having committed
           the crime.
      NonFACTIVE: He reported her to have committed
            the crime.

The gerundive is said to imply that the report was true in the
speaker's mind, while the infinitival is said to leave open the
possibility that the report was false, or at least non-substantiated.
We find this distinction over-subtle, and believe we can read
either sentence either way; but in any case it is impossible to
perceive a corresponding distinction with other verbs claimed to
be of the same class:

   (58) (a) He acknowledged the fact that she had committed
        the crime.
      (b) He acknowledged that she had committed the
        crime.

      (b') FACTIVE: He acknowledged her having committed
           the crime.
      NonFACTIVE: He acknowledged her to have
            committed the crime.

Testing the same distinction with anticipate, suspect, remember, emphasize, announce, admit, deduce suggests that the distinction is, at best, transitory.  There are other contrasts between otherwise identical factive and non-factive objects; these are viable, but they cannot be hinged on the gerundive/infinitival contrast.  Thus the Kiparskys' example (59):

> (59) (a) I explained the suspect's inching doorward.
> (b) I explained that the suspect inched doorward.

where (59.a) is derived from "I explained the fact that the suspect inched doorward", requires distinct meanings of explain:  "to give reasons for" in (a) and "say that S to explain X" in (b).  But since explain does not allow  infinitival reduction in the non-factive instance (b), this example in no way supports the contrast claimed for examples like (57).  It shows only that explain requires two distinct lexical entries, which happen in this instance to correlate with [+/-FACT], but that correlation does not appear to exist in general for those verbs that take both factive and non-factive objects.

A diagnostic which works for most of the factivity-indifferent verbs cited by the Kiparskys is reduction of sentential objects to stative-infinitival form, which is consistently disallowed by factives:

(60)

The professor

| | |
|---|---|
| (a) | anticipated ? |
| (b) | acknowledged |
| (c) | suspected |
| (d) | reported |
| (e) | remembered |
| (f) | emphasized ? |
| (g) | announced (?) |
| (h) | deduced |

Bacon to be the real author.

There are dialect differences about the viability of examples (a,f,g). As noted above, it is not universally true that non-factive predicates are compatible with this structure (e.g. charge, intimate), but perhaps all the factivity-indifferent ones are.  In the present analysis, at any rate, it has been assumed that predicates are factive or non-factive in accord with the test of whether they allow "the fact that S"; and if they allow it, and also allow stative-infinitival reduction, they are marked as factivity-indifferent (i.e. [+/-FACT, [+/-S] with obligatory specification of these such that if one feature is plus, the other is minus).

3. The Abstract Instrumental

One fringe benefit of the Kiparskys' analysis of factive/
non-factive nominalizations is that a slightly messy aspect of
nominalization within the Case Grammar frame of reference is
cleaned up.  At one point in the development of this grammar it
was assumed, almost by default, that at least two distinct
underlying cases must be allowed to dominate nominalizations, for
sentences like (61):

> (61)  (a)  That he broke out of jail proves that he
>            was guilty.
>        (b)  Her leaving early suggests that she was
>            bored.

Fillmore suggested that the subject nominalization of these sentences
should be dominated in the deep structure by the Instrumental Case
(or conceivably some case like "Means" that does not now appear in
the grammar).  The problem with that suggestion was that there was
then no way whatever to limit the range of cases under which the
feature [+/-S] could appear, though it was clear that we did not
want sentential objects under Datives, for example.  But if all
sentences of the type (61) involve only factive nominalizations
(in the subject), as appears to the case, then Fillmore's suggestion
can be adopted, but not with Instrumental case directly dominating
the nominalization:  rather it dominates a factive of the structure
specified in (4.a), since clearly the sentences (61) are reductions
of (61'):

> (61')  (a)  The fact that he broke out of jail proves
>             that he was guilty.
>         (b)  The fact of her leaving early suggests that
>             she was bored.

B.  Sentential/NonSentential

The noun _fact_ is itself a non-factive predicate.  If any
predicate is [-FACT], it may or may not take a sentential NP in its
case frame.  It must be marked [+S] if its only possible realization
of the case NEUT is sentential, or [-S], if it cannot take a
sentential realization of NEUT.  If it takes either, then it is
marked [+/-S] and specified one way or the other under the
convention of obligatory specification.

If a predicate allows a sentential realization of NEUT,
it must still be marked for the _kind_ of sentence permitted or
required.  Predicates which are constrained to indicative sentences
are marked [-IMPER], [-WH-S]; those which are constrained to
imperative sentences are marked [-INDIC], [-WH-S]; and those which
are constrained to interrogatives are marked [-IMPER], [-INDIC].
These features are hierarchically related to the feature [+S] such
that there is a lexical redundancy rule (62):

(62)  [+IMPER]
      [+INDIC]  →  [+S]
      [+WH-S]

The kinds of constraints that are provided by these features are illustrated in (63):

(63)  (a)  They demanded that she leave.
      (b)  *They demanded that she left.
      (c)  *They demanded what she was doing.

      (d)  They expected that she would leave.
      (e)  *They expected that she leave.
      (f)  *They expected who arrived late.

      (g)  They knew that she left.
      (h)  *They knew that she leave.
      (i)  They knew who left.

      (j)  They asked that she leave.
      (k)  They asked who left.
      (l)  *They asked that she left.

      (m)  They insisted that she leave.
      (n)  They insisted that she left.
      (o)  *They insisted who left.

The features [FACT], [S], [INDIC], [IMPER], and [WH-S] are strict subcategorial features in the hierarchy (64), with the definitions (65):

(64)                    FACT
              [+]            [-]

         [-S]                    [S]
                              [+]    [-]

         [INDIC]    [IMPER]        [WH-S]
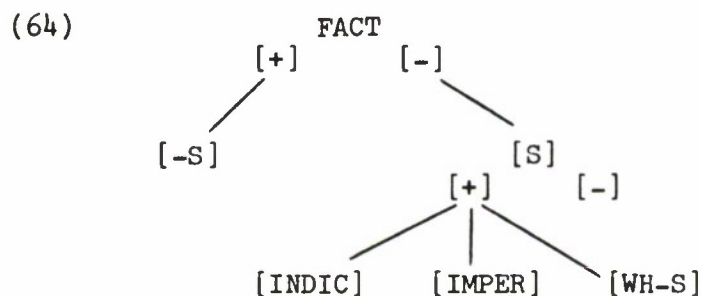
(65)  (a)  [FACT] = [____NEUT[NP the fact NEUT[NP [S]]]]

      (b)  [S]   = [____NEUT[NP [S]]]

(c)   $[\text{INDIC}] = [\_\_\_\_\text{NEUT}[_{NP}[_S[-\text{SJC}]]]]$

> where -SJC means that the predicate
> of that S does not contain the
> morpheme SJC ("subjunctive")

(d)   $[\text{IMPER}] = [\_\_\_\_\text{NEUT}[_{NP}[_S[+\text{SJC}]]]]$

> where +SJC means that the predicate
> of that S contains the morpheme SJC

(e)   $[\text{WH-S}] = [\_\_\_\_\text{NEUT}[_{NP}[_S[\text{WH}]]]]$

> where WH means that the S contains
> the feature [+WH]

A predicate which allows only a non-sentential NP as realization of
the case NEUT, and does not allow the noun fact with its potential
complementation, would be marked [-FACT][-S] in the lexicon.  No
provision is made here for those predicates that allow only cognate
objects other than sentential ones, like dream:

> (66)   He dreamed that he had solved the problem.
> He dreamed a pleasant dream.


C.   Emotive/NonEmotive

     1.   The Sources of Complementizers
     2.   Classes of Emotive and NonEmotive Predicates

1.   The Sources of Complementizers

Rosenbaum (1967a) proposed that that, for-to, and POSS-ing
were essentially idiosyncratic features on the heads of sentential
complements.  It is still hard to find satisfactory generalizations
to account for the gerundive complements, but at least that and
for appear to be redundant on semantic and/or configurational
facts.  The item that can be inserted by an extremely general rule,
given the conditions that there is an embedded sentence dominated
by NP and that subject-verb agreement has applied; it is sub-
sequently deletable by an optional rule which applies to all such
structures provided that they are not subjects, and are non-factive.
The item for appears to depend, as claimed by the Kiparskys, on
a class of head items which have the feature [+EMOT].  As is
demonstrated in Section III.D of this paper, the independent
insertion of for in the presence of the feature [+EMOT] has numerous
syntactic consequences in conjunction with several other processes
which all result in the formation of infinitivals.

We therefore reject, along with the Kiparskys, the spurious introduction of _for_, as done by both Lees (1960) and Rosenbaum (1967a),in the derivation of infinitival nominalizations. Instead we insert _for_ in the presence of the feature [+EMOT] on the head item. This label "emotive" refers to "all predicates which express the subjective value of a proposition rather than knowledge about it or its truth value" (Kiparsky, 1968).

## 2. Classes of Emotive and NonEmotive Predicates

Depending on the case-frame of the predicate, a sentence dominated by NEUT may undergo either subjectivalization or objectivalization in the early rules of the cycle. These lists are from Kiparsky (1968).

[+EMOT] [+FACT]
subjectivalization

| | |
|---|---|
| important | fascinate |
| crazy | nauseate |
| odd | exhilarate |
| relevant | defy comment |
| instructive | surpass belief |
| sad | a tragedy |
| suffice | no laughing matter |
| bother | |
| alarm | |

The Kiparskys list three factive predicates which require objectivalization of the sentence under NEUT, but these are ungrammatical with _for-to_ constructions in all dialects we have checked. Their examples are _regret_, _resent_, and _deplore_. We find the examples (67) ungrammatical, but evidently the Kiparskys do not:

(67)  (a)  *We regretted for her to do it.
      (b)  *We resented for her to do it.
      (c)  *We deplored for her to do it.

For us there appear to be no [+FACT], [+EMOT] examples of verbs with which the NEUT would undergo objectivalization -- i.e. there are no sentences of the type (67) with factive predicates. The one apparent counter-example has been analyzed correctly by Lees, Rosenbaum and others as containing a preposition with the verb which deletes the _for_-complementizer, and it is non-factive in any case:

(68)  (a)  We hoped for them to do it.
      (b)  We hoped for a solution to the problem.
      (c)  *We hoped for the fact that they would do it.

In contrast with the [+EMOT], [+FACT] class of predicates with subjectivalization, there is a non-factive class; there is a corresponding class with objectivalization:

| [+EMOT] [-FACT] | [+EMOT] [-FACT] |
|---|---|
| subjectivalization | objectivalization |

|  |  |
|---|---|
| improbable | [+FUT] |
| unlikely |  |
| nonsense | intend |
| a pipedream | prefer |
|  | reluctant |
| [+FUT] | anxious |
| urgent | willing |
| vital | eager |

The feature [+FUT] is a deep structure constraint discussed in Section G of this paper. It requires that the tense of the predicate of the embedded sentence refer to a time posterior to that of the matrix predicate.

To show that the feature [EMOT] is on a parameter orthogonal to that of the feature [FACT], the Kiparskys list [-EMOT] examples of each type:

| [-EMOT] [+FACT] | [-EMOT] [+FACT] |
|---|---|
| subjectivalization | objectivalization |

|  |  |
|---|---|
| well-known | be aware of |
| clear | bear in mind |
| (self)-evident | make clear |
| goes without saying | forget |
|  | take into account |

| [-EMOT] [-FACT] | [-EMOT] [-FACT] |
|---|---|
| subjectivalization | objectivalization |

|  |  |
|---|---|
| probable | [+FUT] |
| likely |  |
| turn out | predict |
| seem | anticipate |
|  | foresee |
| [+FUT] |  |
|  | [+/-FUT] |
| imminent |  |
| in the works | say |
|  | suppose |
|  | conclude |

D. Infinitivalization

1. Conditions for TO-REPLACE-AUX

Following the Kiparskys' view of the matter (1968),with
minor modifications, the infinitive is taken to be simply the
form of a verb that has not undergone agreement with a subject,
always marked by to unless deleted by the exception feature
[+TO-DEL]. The list of [+TO-DEL] verbs includes the verbs of
sense perception see, hear, feel (but not taste, smell), and such
verbs as help, make, have, let. The conditions under which a
verb does not undergo agreement with a subject are the following:

   a. When the subject is marked with an oblique (surface)
      case, as when it is in construction with a preposition
      for inserted with the [+EMOT] verbs.

   b. When the subject is erased from the clause of the
      verb, e.g. by EQUI-NP-DEL, where the erasing node
      will be either a deep structure dative, or it will
      be a deep structure agent in the absence of a dative.

   c. When the subject is raised from its own clause into
      the next higher S; it may be raised to object of the
      next higher predicate by the regular objectivalization
      rule if it is marked [+RAIS-OBJ], or it may be
      raised to subject of the next higher predicate by
      the regular subjectivalization rule if it is marked
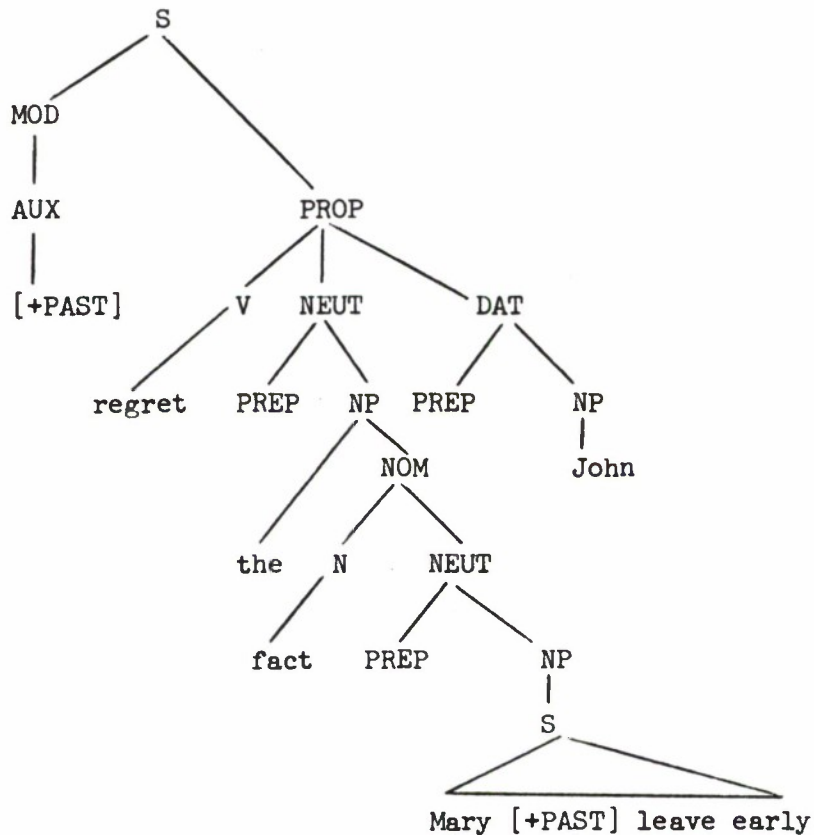      [+RAIS-SUBJ].

Given any instance, then, of a verb that has not undergone agreement
with a subject, for any of these reasons, the rule of TO-REPLACE-AUX
applies to insert the form to in the position of the Auxiliary:
more precisely, to replaces tense and modal, retaining Perfect
and/or Progressive and inserting Perfect in case the tense was
Past:

(69)  (a)  He expected -- She would have done it.
           He expected her to have done it.

      (b)  He supposed -- She did it.
           He supposed her to have done it.

      (c)  He ordered her -- She SJC do it.
           He ordered her to do it.

      (d)  He believed -- She is working on it.
           He believed her to be working on it.

2.  Illustration of 1.a:  Derivation of Infinitivals with [+EMOT]
    Predicates

The derivation of infinitival nominalizations with [+EMOT]
predicates proceeds roughly along the following lines:  given a
structure like (70.a) with a factive predicate, the optional rule
of FACT-DEL yields (70.b), after the usual rules of objectivaliza-
tion and subjectivalization have been applied:

(70)  (a)

```
                        S
               /                \
            MOD                 PROP
             |              /     |    \
            AUX            /    NEUT    DAT
             |           V    /    \    /   \
         [+PAST]      regret PREP  NP PREP   NP
                                 /  |          |
                               the  NOM      John
                                   /  |   \
                                the  N    NEUT
                                   /    /    \
                                fact  PREP    NP
                                              |
                                              S
                                            /  \
                                   Mary [+PAST] leave early
```

573

(b)

```
                        S
            _____|_____
           |        |        |
          NP       MOD      PROP
         [+DAT]     |      __|__
           |       AUX    |     |
         John       |     V     NP
                 [+PAST]  |    [+NEUT]
                         regret  |
                                 S
                            _____|_____
                           Mary [+PAST] leave early
```

Mary [+PAST] leave early
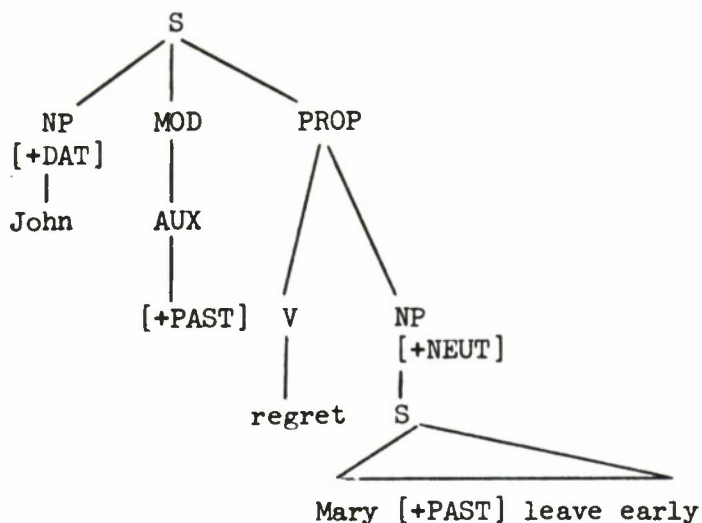
It might be noted in passing that if only the most general trans-
formations had operated on the structure (70.a), the output would
be (70.c); and if the optional GERUNDIVE transformation had been
applied, the output would be (70.d), with the preposition _of_
being retained as the marker of the deep structure NEUT.

> (70) (c)  John regretted the fact that Mary left early.
>      (d)  John regretted the fact of Mary's having
>           left early.

If FACT-DEL has been applied to derive (70.b), that structure is
then subject to THAT-INSERT, yielding (70.e):

> (70) (e)  John regretted that Mary left early.

Since FACT-DEL follows GERUNDIVE, the output could also be (70.f):

> (70) (f)  John regretted Mary's having left early.

In those dialects like the Kiparskys' in which _regret_ is a [+EMOT]
verb that allows objectivalization, the rule of FOR-INSERT applies
to the structure  (70.b), of which the output is (70.g):

> (70) (g)  John regretted -- for -- Mary PAST leave early

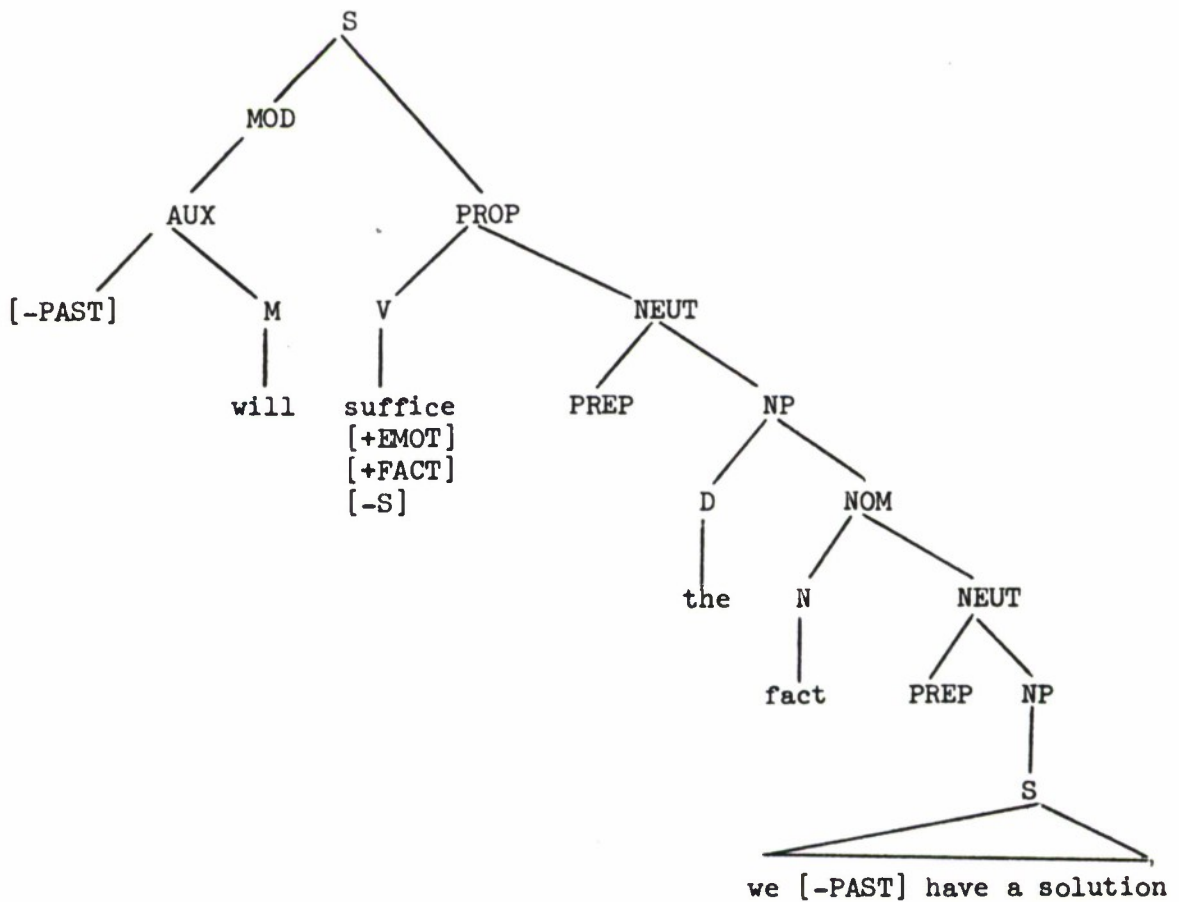This is subject to obligatory TO-REPLACE-AUX, with the output (70.h):

> (70) (h)  John regretted for Mary to leave early.

Since (70.h) is ungrammatical in the dialects we have had access to
(see discussion in Section III.C.2 above), the generalization
about _for_ being dependent upon [+EMOT] predicates is immediately
suspect.  One almost wonders if the generalization would have been

noticed at all by speakers of a dialect for which _regret_, _resent_, and _deplore_, which are obviously emotive in semantic content, are ungrammatical in constructions like (70.h). But the generalization is valid for such a wide range of examples (Section III.C.2) that these three items must be marked simply as exceptions: i.e. they are semantically [Emotive] but syntactically [-EMOT].
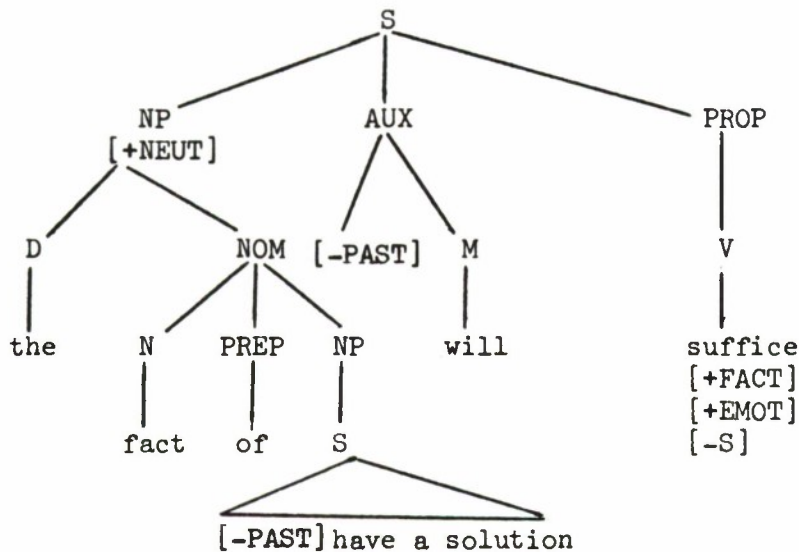
Illustrating further, this time with an example that is not dialectally tainted, consider (71):

(71) (a)

```
                            S
                   _____/ _____
                  MOD                 PROP
              ___/ \___           ___/ \___
            AUX        M         V         NEUT
           /  \        |         |       __/  \__
     [-PAST]   M      will    suffice  PREP     NP
                                      [+EMOT]   __/ \__
                                      [+FACT]  D      NOM
                                       [-S]    |    __/ \__
                                              the  N     NEUT
                                                   |    __/ \__
                                                  fact PREP    NP
                                                              |
                                                              S
                                                        /‾‾‾‾‾‾‾\
                                                     we [-PAST] have a solution
```

After the usual early rules have been applied, (71.a) has the structure (71.b):

(71) (b)

```
                              S
              _____|_____
             |                |                |
            NP               AUX              PROP
          [+NEUT]         ___|___              |
          __|__          |       |             V
         |     |        [-PAST]   M            |
         D    NOM                 |         suffice
         |   __|__              will        [+FACT]
        the |  |  |                         [+EMOT]
            N PREP NP                        [-S]
            |   |   |
          fact  of  S
                   /_\
           [-PAST] have a solution
```

(71.b) is the structure underlying (71.c) to which PREP-DEL and THAT-INSERT have been applied:

(71) (c)  The fact that we have a solution will suffice.

If, instead, the optional rule of FACT-DEL is applied, and then PREP-DEL and THAT-INSERT, the sentence is (71.d):

(71) (d)  That we have a solution will suffice.

But if FACT-DEL is applied, and then the rule of FOR-INSERT is applied, followed by the then obligatory TO-REPLACE-AUX, the sentence is (71.e):

(71) (e)  For us to have a solution will suffice.

EXTRAPOSITION can optionally be applied either to (71.d) or (71.e):

(71) (f)  It will suffice that we have a solution.
     (g)  It will suffice for us to have a solution.

The mention of extraposition brings us to a proposal of the Kiparskys' which we reject, namely the source of _it_ in (71.f,g).

3. **The fact → it?**

      Consider the sentence (70.c), <u>John regretted the fact</u>
<u>that Mary left early</u>. The Kiparskys claim that <u>the fact</u> may
be pronominalized as <u>it</u>, thus deriving the sentence (70.c'):

(70)  (c')  John regretted it that Mary left early.

The sentence is certainly grammatical. But the Kiparskys' claim
that <u>it</u> derives here from pronominalization of <u>the fact</u> is
dubious in the extreme, for the following reasons:

    (a)  Definite pronominalization cannot be so construed
        as to end up with a definite pro-form followed
        by a modifier/complement/sentential object of
        any kind. Only the "whole NP", a notion that is
        not totally clear (see PRO), is subject to
        definite pronominalization. This fact explains,
        e.g., the ungrammaticality of (72):

(72)    *The belief that the world was round replaced
       it that the world was flat.

    (b)  Even if there were no general fact such as (a),
        derivation of <u>it</u> by pronominalization of <u>the fact</u>
        would run into grave difficulty in the face of the
        grammaticality of (70.c) when pronominalized as
        (70.c'), but the ungrammaticality of (70.d) if
        a similar pronominalization is attempted to yield
        (70.d'):

(70)  (d')  *John regretted it of Mary's having left early.

    (c)  The assumption of the Kiparskys that there really is
        a head noun in sentences like (73.b,d) but not in
        sentences like (73.a,c),

(73)  (a)  I take it that you all know the answer.
      (b)  I resent it that you all know the answer.

      (c)  I would hate it for anyone to reveal the secret.
      (d)  I would resent it for anyone to reveal the
         secret.

        would be greatly strengthened if Ross's Complex NP
        Constraint (see REL) held for (b) and (d), which are
        putative pronominalizations of <u>the fact</u>, but not for
        (a) and (c), which are assumed to come from "vacuous
        extraposition from object" (Rosenbaum (1967a),
        accepted by Kiparsky (1968), with the qualification
        "perhaps"). But in fact relativization on <u>answer</u>
        and <u>secret</u> is equally good in either member of the
        pairs:

(73') (a/b)  This is the answer which I take/resent
             it that you all know.

      (c/d)  This is the secret which I would hate/resent
             it for anyone to know.

That the Complex NP Constraint should hold in these
examples (not cited by the Kiparskys) follows from
their claim that the ungrammaticality of (73.e,f),
which are cited by them, is accounted for by the fact
that the Complex NP Constraint disallows relativization
across a lexical head noun, namely the fact whether
pronominalized or not:

(73)  (e)  *This is the book which you reported it that
           John plagiarized.
      (f)  *This is the book which you reported the fact
           that John plagiarized.

But (73.e,f) prove nothing, since (73.g) is ungrammatical
anyway:

(73)  (g)  *You reported it that John plagiarized the book.

This entire argument may be with a straw man, since in the preliminary
version (the only one we have seen) there is a footnote #7 in which
the Kiparskys point out that "It appears now [i.e. presumably at
some time after completing the main body of the manuscript] that
questioning and relativization are rules which follow fact-deletion."
Their other observations about the blocking of movement transformations
(the Complex NP Constraint) by virtue of the presence of the head
noun fact (as in NEG-raising, which occurs only with non-factives,
and RAIS-TO-SUBJ, which also occurs only with non-factives) may be
correct; they do not depend on pronominalization.


     Thus while there is no doubt that the Kiparskys' observation
that the surface form it-that-S is generally acceptable with factive
predicates and unacceptable with non-factive predicates is a correct
observation, and while it is appealing to explain this on the basis
of pronominalization of the fact, the explanation is unsatisfactory.
In this analysis, then, the fact is treated as deletable by the
rule FACT-DEL; once deleted, then vacuous extraposition can apply:

(74)  (a)  I hate it that she dresses so conservatively.
           [Factive, Obligatory extraposition from object]
      (b)  I regret it that she dresses so conservatively.
           [Factive, Optional extraposition from object]

There is a redundancy relation between extraposition from object and factivity. The rule for such extraposition can be framed only given a statable environment, and that environment is statable only by mention of the feature [+FACT] on the governing predicate. But there are indubitably factive predicates like <u>grasp</u> which do not permit extraposition from object (and must be marked with an exception feature):

> (75) (a) He grasped (the fact) that the project was almost over.
> (b) *He grasped it that the project was almost over.

There are factive predicates like <u>hate</u> which require extraposition (so that the rule is not always optional):

> (76) (a) He hates it that the project is almost over.
> (b) *He hates that the project is almost over.

and there are the great majority of factive predicates with which extraposition is optional:

> (77) (a) He regrets that the project is almost over.
> He regrets it that the project is almost over.

4. Conditions for EQUI-NP-DEL

In outlining the derivation (71) and (72) we were illustrating the operation of the first of three conditions under which a verb does not undergo agreement with a subject, namely when <u>for</u> is inserted under government by the feature [+EMOT], thereby assigning an oblique surface case (whether actually labeled <u>accusative</u>, or blocked from participating in subject-verb agreement by some other device: see the analysis of subject-verb agreement and pronoun form in PRO) which cannot participate in subject-verb agreement rules, in turn forcing the verb into the infinitive form by the rule TO-REPLACE-AUX.

The second condition under which a verb does not undergo agreement with a subject is when the subject has been erased by some coreferential node in the matrix. There are two classes of such coreferential nodes: the transformation of EQUI-NP-DEL must inspect a structure and determine whether the subject of the embedded sentence is identical with a dative, or if there is no dative then with an agent in the matrix sentence. If there is such a coreferential node, the subject of the embedded sentence is erased.

5. Illustration of l.b:  Derivation of Infinitivals with
   EQUI-NP-DEL

      The first of the two classes of coreferential nodes to
which EQUI-NP-DEL applies, erasing the subject node of the sentential
object, is a dative node governed by the same head item as the one
which governs the sentential object, as in (78.a):

(78)  (a)

```
                        S
           _____/  \____
        MOD                   PROP
         |                   /  |_____
        AUX                 V   |         NEUT        DAT            AGT
         |                  |   |        /    \      /    \        /    \
         TE             require |    PREP    NP  PREP   NP   PREP    NP
         |              [DAT = of]             |            |            |
        PRES                                   S           you           I
                                              / \
                                      you SJC solve the problem
```
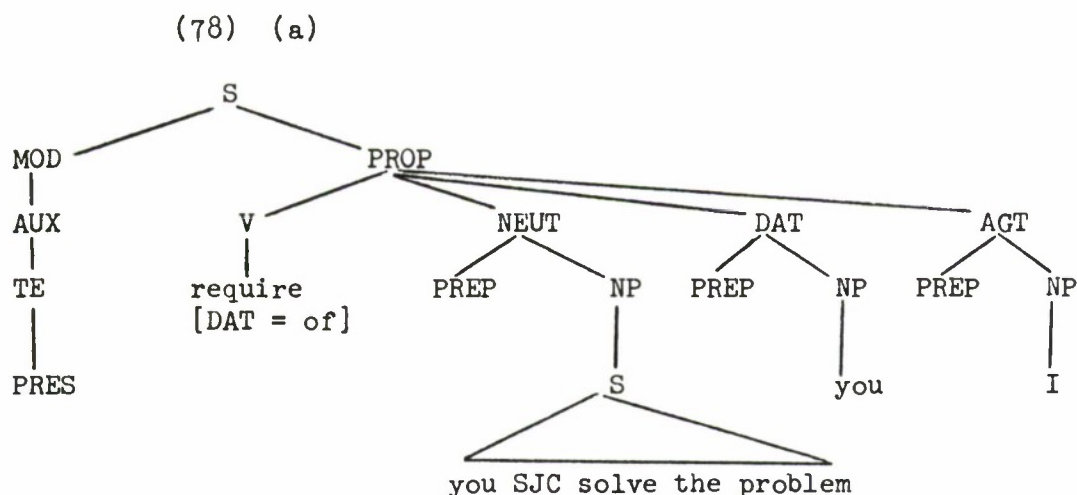
The position of the dative after the object is its normal position:

(78)  (b)  I require the answer of you.
           I gave the book to you.

Its position before the object in the clausal nominalization (78.a)
is presumably the result of a late reordering rule having to do with
the length of the constituents, which is supported by the order
of elements after extraposition:

(78)  (c)  I require of you that you solve the problem.
           I require it of you that you solve the
           problem.

Recall now that the objectivalization rules of this grammar make
the realization of the NEUT case into the object unless the verb is
marked for objectivalization of a different case.  Thus a sentence
like He aimed the gun at John is an instance of objectivalization
of the instrumental case, and He filled the pool with water is an
instance of objectivalization of the locative case.  Ordinary
datives, in sentences like I gave him the money, are instances of
optional objectivalization of the dative.  Consider now the sentence
(78.c):  in it, we have objectivalized NEUT, not DAT.  If we had
chosen Passive Subject Placement in the early rules, the sentence
would be (78.d):

(78)  (d)  That you solve the problem is required
           of you (by me).

Now, the sentence which illustrates EQUI-NP-DEL with the verb require is (78.e):

(78)  (e)  I require you to solve the problem.

But this sentence can only be derived from (78.a) if EQUI-NP-DEL has applied, and then objectivalization, since the passive is (78.f):

(78)  (f)  You are required to solve the problem (by me).

In short, then, the deep structure (78.a) underlies both (78.c) and (78.f), and EQUI-NP-DEL is optional for this verb.

The two derivations from (78.a) resulting in (78.c) and (78.e) are possible only if EQUI-NP-DEL is optional for this verb. Besides require, the verbs ask and request are of this type.  More frequently the verbs which share the derivation from structures like (78.a) have obligatory EQUI-NP-DEL if the coreferential NP appears in an embedded imperative.  Such verbs are force, allow, implore, permit, persuade, want, warn, encourage, instruct, and remind.  If it were not obligatory, the starred examples of (78.g) would result:

(78)  (g)  I forced him to solve the problem.
          *I forced that he solve the problem.
          *I forced him that he solve the problem.
          *I forced to/of/for him that he solve the problem.

The condition of obligatory EQUI-NP-DEL depends on embedding of an imperative, since remind, persuade, warn, and instruct take both indicative and imperative embeddings = I reminded him$_i$ that he$_i$ was leaving at one = I reminded him to leave at one.

A different set of verbs which also shares the derivation of "I require you to solve the problem" is differentiated from the require class only by the fact that its case frame has Dative optionally, as require does, but if Dative is present then EQUI-NP-DEL is obligatory. Examples are command, order, advise, urge, and desire.  The constraint just stated provides for the grammatical examples of (78.h) while blocking the ungrammatical one:

(78))  (h)  I commanded that he solve the problem. [No dative]
           I commanded him to solve the problem.
          *I commanded him that he solve the problem.

There is a small class which, like those above, takes embedded imperatives, but this class disallows EQUI-NP-DEL:

(78)  (i)  I insist/demand/suggest that you solve the problem.
          *I insist/demand/suggest you to solve the problem.

Since this class disallows EQUI-NP-DEL (if it allows Dative in its case-frame at all, as in "I insist that you solve the problem for me", which may better be analyzed as a Benefactive case), there is no infinitivalization of the preceding type. <u>Demand</u>, however, allows infinitivalization of the type discussed below, as in (79):

   (79) I demand to see a doctor.

  The second class of coreferential nodes to which EQUI-NP-DEL applies in the derivation of infinitival nominalizations is those in which there is no dative directly dominated by the governing item, but the relation of coreferentiality holds between the matrix and constituent agents. Agent-agent coreferentiality may be obligatory, as with a verb like <u>learn</u>, <u>condescend</u>, or <u>try</u>:

   (81) (a) He condescended to resign when he came of age.
      (b) He tried to do his homework.
      (c) He learned to analyze sentences.

      (d) *He condescended Mary to resign.
      (e) *He tried Bill to do his homework.
      (f) *He learned Mary to analyze sentences.

Or agent-agent coreferentiality may be optional as with <u>expect</u>, <u>intend</u>, <u>want</u>, <u>forget</u>, <u>remember</u>,...:

   (82) (a) He expected Mary to leave early.
      (b) He expected to leave early.

      (c) He intended for Mary to leave early.
      (d) He intended to leave early.

      (e) He wanted Mary to leave early.
      (f) He wanted to leave early.

A single rule of equi-NP-deletion handles both instances like (78.e) and (81)-(82), since the rule applies first to a coreferential dative, and if it finds none it applies to a coreferential agent. In either instance, the subject of the sentential object is erased, leaving the conditions necessary for infinitivalization with <u>to</u>, namely a verb without a subject to which the agreement rules would apply.

  In addition to the two classes of equi-NP-deletion, there is an indefinite subject <u>one</u> which is deletable, but such deletion applies <u>after</u> such rules as <u>for</u>-insertion with [+EMOT] predicates and therefore provides no new basis for infinitivalization:

(83)  (a)  For one to see her is for one to love her.
      (b)  To see her is to love her.

      (c)  In order for one to get good grades, it is
           necessary for one to study hard.
      (d)  In order to get good grades, it is necessary
           to study hard.

      (e)  John's proposal for (some)one to end the war
           in Viet Nam fell on deaf ears.
      (f)  John's proposal to end the war in Viet Nam
           fell on deaf ears.

6.  Conditions for Raising Subject to Subject, or Subject to Object

      The third and final condition under which a verb may fail to
have a subject remaining to provide for finite-verb agreement is when
the subject of the sentential object is raised from its own clause
into the next higher S.  There are two main classes of raising:

      a.  Raise the subject of the sentential object to subject of
          the matrix verb by the rule RAIS-SUBJ, governed by the
          feature [+RAIS-SUBJ].  This rule precedes the regular
          subjectivalization rule early in the cycle.  From the
          structure underlying (84.a) it provides either for (84.b),
          where the entire neutral case is subjectivalized, or for
          (84.c) where the subject is raised.

(84)  (a)  Is unlikely - He will solve the problem.
      (b)  That he will solve the problem is unlikely.
      (c)  He is unlikely to solve the problem.


          This analysis eliminates the spurious IT-replacement
          rule of Rosenbaum, since (84.c) is generated directly
          from the underlying structure (84.a), not from the
          extraposition of (84.b'):

(84)  (b')  It is unlikely that he will solve the problem.

The rule of RAIS-SUBJ (read "raise subject to subject")
is obligatory with verbs like <u>begin</u>, <u>continue</u>, <u>start</u>
blocking (84.f):

(84) (d) Began - He ran.
     (e) He began to run.
     (f) *That he ran began.

Sentences like (84.e), analyzed as Intransitive Verb
Phrase Complementation by Rosenbaum (1967a), have a number
of special properties which argue that they belong with
the other RAIS-SUBJ verbs. The most striking such
property is the occurrence of the expletive <u>there</u> as
surface subject of the matrix verb in just those
instances where it is possible as surface subject of
the embedded verb:

(84) (g) There began to be rumblings of discontent.
     (h) There were rumblings of discontent.

A counterargument to this analysis, pointed out by
Perlmutter (1968b) is that with verbs that appear to
require deep structure subject identity, like <u>try</u>,
<u>condescend</u>, a verb <u>begin</u> must have a deep structure sub-
ject in order to be able to state the constraint that
blocks (84.i):

(84) (i) *I tried to begin to like jazz.

Perlmutter concludes that the verb <u>begin</u> must be permitted
to occur in both configurations: i.e. with abstract sub-
jects, as in (84.d,e), and with concrete subjects and
complements, as in (84.j):

(84) (j) He tried to begin to do his work.
         He began to do his work.

There are, however, difficulties in the notion "deep
structure constraint" on subject identity. If (84.k) is
well-formed, as we believe,

(84) (k) John tries to be difficult to please.

it must have a deep structure in which <u>John</u> is object of
<u>please</u>: i.e., <u>To please John is difficult</u>. The constraint
that the subject of <u>try</u> and the subject of its complement
must be identical cannot here be stated as a deep structure

constraint, only as a mid-derivation constraint, or conceivably as a surface structure filter of some kind. If (84.k) is judged not to be fully well-formed, then it appears that begin will indeed have to be permitted in both configurations, as Perlmutter claims. But then there will be unexplained derivations of Perlmutter's John began to read the book, which stands as an unsolved problem. The data on which the case rests is not entirely clear, since (84.i), rejected by Perlmutter, is acceptable to most speakers.

b.  Raise the subject of the sentential object to object of the matrix verb by the rule RAIS-OBJ (read "Raise subject to object") governed by the feature [+RAIS-OBJ]. This rule is optional for most verbs, but obligatory with a few like consider which disallow clausal nominalization:

(85)  (a)  They expected that he would solve the problem.
      (b)  They expected him to solve the problem.

      (c)  He believes that she is intelligent.
      (d)  He believes her to be intelligent.

      (e)  *He considers that she is intelligent.
      (f)  He considers her to be intelligent.

Like the rule RAIS-SUBJ, this one precedes the regular objectivalization rule early in the cycle, thus providing, in those instances where it is optional, for either the clausal or infinitival nominalization of (85).

        Consider now the motivations for claiming that the subject of the embedded clause in (85.c) is raised to object of believe in (85.d). If the analysis did not raise the clausal subject she to object of believe, there would be no natural explanation of the fact that reflexivization is possible in this position:

(85)  (g)  She believes herself to be intelligent.

Reflexivization is not normally possible down into a lower sentence:

(85)  (h)  *She persuaded John to like herself.

This argument is not totally convincing, perhaps, in view of the fact that verbs like expect require EQUI-NP-DEL under these circumstances, so that one cannot argue for RAIS-OBJ on these grounds, with these verbs:

(85) (i) *He expected himself to solve the problem.
(j)  He expected to solve the problem.

Nonetheless the RAIS-OBJ analysis, proposed by the Kiparskys (1968), serves well to bring together all instances of infinitivalization under a single principle of to-insertion and is adopted here.  It is quite analogous to the RAIS-SUBJ principle illustrated in (84), which has been accepted in some form by virtually everyone who has examined sentences of this type.  In the present analysis, it is extended to cover the so-called "second passive" of (86):

(86) (a)  One says -- He is intelligent.
(b) *One says -- him -- to be intelligent.  [RAIS-OBJ objectivalization]
(c)  He is said to be intelligent.  [Passive subjectivalization]

(d)  One says -- He is intelligent
(e)  One says -- that he is intelligent.  [Regular objectivalization]
(f)  That he is intelligent is said.  [Passive subjectivalization]
(g)  It is said that he is intelligent.  [Extraposition]

It is true that this derivation creates one ungrammatical intermediate stage for the verbs say, rumor, and repute; but all the others that are commonly analyzed as second passives have no ungrammatical intermediate stage under this derivation -- suppose, think, consider, believe,...--and there is no reason to set up a different derivation for the verbs say, rumor, and repute when all that is required is either to make the passive obligatory with subject-raising in these sentences, or to claim that some special surface constraint filters out (86.b), since these verbs are idiosyncratic in a number of ways.

There is one strong reason to maintain this derivation of the 2nd passive even in the face of the ungrammatical intermediate stage generated for say, rumor, and repute. The only alternative derivation is by some form of IT-replacement after extraposition:

(86) (g)  It is said that he is intelligent.
(h)  He is said to be intelligent.

But, although this avoids an ungrammatical stage in the
2nd Passive derivation with <u>say</u>, <u>rumor</u>, and <u>repute</u>, it
provides another path for the comparable 2nd Passive
derivation with <u>think</u>, <u>believe</u>, <u>suppose</u>, etc.:

(86)  (i)  It was thought that he was intelligent.
      (j)  He was thought to be intelligent.

But (86.j) can also be derived through the regular
passive from <u>They thought him to be intelligent</u>; since
(86.j) shows no trace of structural ambiguity, we be-
lieve that the general RAIS—OBJ solution is correct
and that IT-replacement should be rejected for 2nd
Passive derivations.


7.  Illustration of l.c:  Derivation of Infinitivals with Subject
    Raisings

    We consider now in detail one example of each type of subject
raising.  The deep structure of (84.a,b,c) is shown as (84'):

(84')
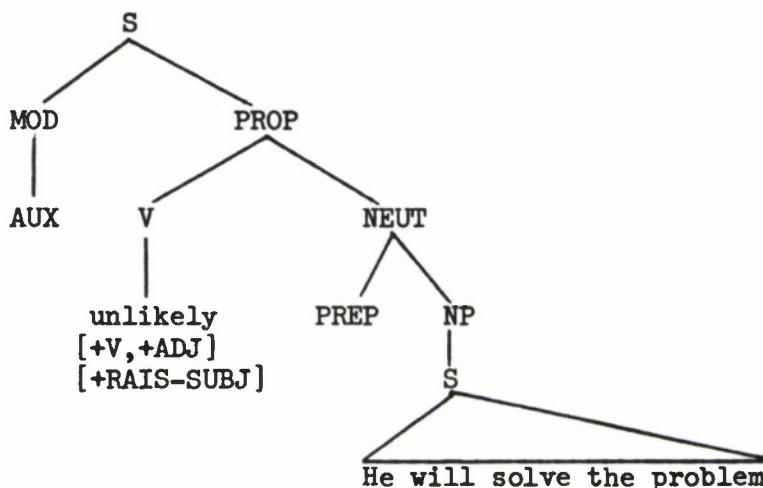


The general rule of BE-INSERTION inserts <u>be</u> in front of the adjectival
predicate.  The rule of RAIS-SUBJ, an alternative to the general sub-
jectivalization rule, governed by the feature [+RAIS-SUBJ] on <u>unlikely</u>
(which is marked plus/minus this feature in the lexicon, since the
raising is optional), applies to move the subject of the sentential
object out; this leaves the usual configuration for the rule TO-REPLACE-
AUX, and the result is the structure underlying (84.c).

Alternatively, given a structure identical with (84') except for negative specification of the feature [RAIS-SUBJ], the entire sentential object will be subjectivalized, with the output being the structure underlying (84.b).

The deep structure of (85.a,b) is shown as (85')

(85')

```
                          S
                   _____/ _____
                 MOD             PROP
                  |            ___/ \___
                 AUX          V        NEUT
                          expect      __/ \__
                        [+V,-ADJ]   PREP    NP
                        [+RAIS-OBJ]          |
                        [+FUT-REDUC]         S
                                          __/ \__
                                    He will solve the problem
```
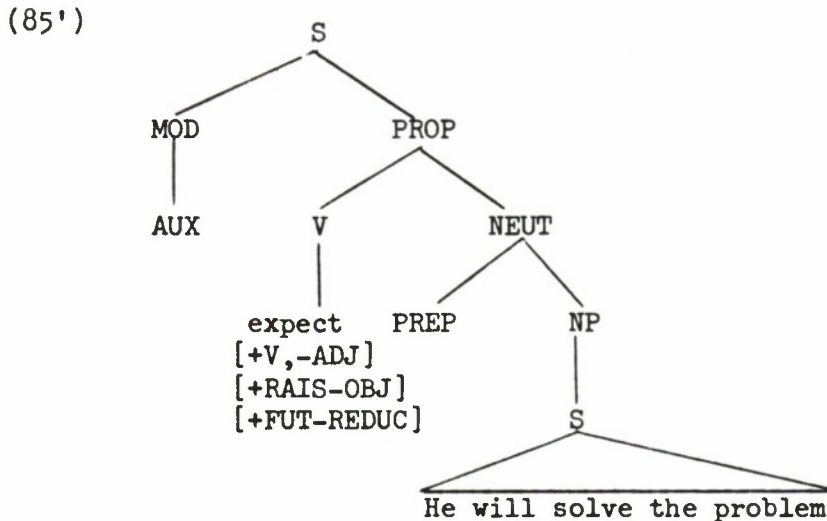
The rule of RAIS-OBJ, an alternative to the general objectivalization rule, governed by the feature [+RAIS-OBJ] on expect (which is marked plus/minus this feature in the lexicon, since the raising is optional), applies to move the subject of the sentential object out, this time into object position where in (84') it was moved into subject position; this leaves the usual configuration for the rule TO-REPLACE-AUX, and the result is the structure underlying (85.b). Alternatively, given a structure identical with (85') except for negative specification of the feature [RAIS-OBJ], the entire sentential object will be objectivalized, with the output being the structure underlying (85.a).

E. Gerundive/NonGerundive

    1.  The Relation between Factivity and Gerundives
    2.  Gerundives after Prepositions
    3.  Generic Gerundives
    4.  Adverbial Gerundives
    5.  ing-of Gerundives

1. The Relation between Factivity and Gerundives

It is now possible to consider in detail the proposal of the Kiparskys that infinitival nominalizations derive from the sentential objects of non-factive predicates only, and that gerundive nominalizations derive from the sentential objects of factive predicates. The

question is, does there have to be a parameter [+/-GER] orthogonal to the [+/-FACT] parameter?  If there are gerundive nominalizations that are factive, then the orthogonality of these parameters prevents us from accepting without reservation the claim of the Kiparskys (1968) that there is a redundancy relation between factivity and gerundive, and between non-factivity and infinitival.  We have seen examples which violate the latter claim:  <u>The fact that she died so young was a tragedy</u> → <u>For her to have died so young was a tragedy</u>; but such factive infinitivals are, it is true, restricted to the [+EMOT] constructions, so that there is indeed a correlation between the infinitivals from RAIS-SUBJ and RAIS-OBJ transformations and non-factivity.

The correlation between factivity and gerundives is also high. There are some verbs with which the gerundive is obligatory, as the form of any sentential object:  e.g. <u>avoid</u>, <u>stop</u>,

(87) (a)  She avoided leaving early.
     (b) *She avoided to leave early.

     (c)  She stopped typing at 2:00 a.m.
     (d) *She stopped to type at 2:00 a.m.  [Ungrammatical in the intended sense; grammatical as Purpose ADV]

The Kiparskys do not deal with these, other than to eliminate them from the class of gerundives that they claim are restricted to factive predicates.  It is clear that they are non-factive, since <u>the fact of</u> cannot be construed with them.  But it throws no special light on them to assert merely that they "refer to actions or events" (Kiparsky, 1968).  The point, rather, is that among all the predicates that accept gerundive nominalizations, only the factive predicates accept non-action gerundives (where non-action means that the embedded S contains a [+STAT] predicate, or that the AUX includes PAST, PERF, or PROG); and that, in turn, is equivalent to the assertion that only the noun <u>fact</u> is compatible with non-action gerundive nominalizations of sentential objects.  That is, gerundive nominalization is restricted to actions except when the governing item is <u>fact</u>.  In support of this view, consider (88) and (89):

(88) (a)  He hated to leave so early.
     (b)  He hated leaving so early.
     (c)  He hated having left so early.
     (d)  He disliked understanding the problem.

(89) (a)  He continued to work hard.
     (b)  He continued working hard.
     (c) *He continued having worked hard.
     (d) *He continued understanding the problem.

Both dislike (factive) and continue (non-factive) are compatible with either infinitival or gerundive nominalizations. But only dislike is compatible with the non-action gerundive (88.c), and the fact of can be construed with both (88.b) and (88.c), even if infelicitously because of the semantic incongruity of disliking the fact of anything.

The number of predicates which are compatible with gerundive nominalizations, outside of the [+FACT] class, is very small, and they should be marked as exceptions. Since all factives allow gerundive nominalizations, there must be a lexical redundancy rule of the form (90):

(90)   [+FACT]   [+/-GER]

where [+GER] is a rule feature governing gerundive nominalization of the sentential object of fact, with these predicates. Those predicates with which gerundive nominalization is obligatory must be marked [+/-GER], and all others are redundantly [-GER] by the rule (91):

(91)   [-FACT]   [-GER]

By the general lexical convention that marked features cannot be over-ridden by redundancy rules, the exceptional items marked [+/-GER], if they have been selected with positive specification, remain unchanged by (91). This is equivalent to a marking device:

$$(91') \begin{bmatrix} -FACT \\ U\ GER \end{bmatrix} \quad [-GER]$$

## 2. Gerundives after Prepositions

The remaining instances of gerundive nominalizations are of two types: those which appear after prepositions, and generics. There is one more, largely problematic, type which we characterize as adverbial.

After prepositions, two distinguishable situations exist: (1) the preposition is a case-marking (transformationally-inserted) preposition; or (2) the preposition is a deep structure lexical item. In the former instance, the question of gerundivization is determined by the head (see CASE PLACE II.B), since the head may also govern a that-S embedding:

(92)   (a)   He insisted on her leaving.
       (b)   He insisted that she leave.

That is, <u>insist</u> is lexically marked [+/-GER], and if [-GER] is chosen, then (92.b) is the result, with <u>on</u> deleted late by a general rule deleting PREP before <u>that-S</u>. With other aberrant prepositions - e.g. <u>upon</u> in <u>rely upon</u> - it must be assumed that it is the verb which is governing gerundivization even though in this instance there is no <u>that-S</u> possibility:

(93) (a) He relies upon her working late.
(b) *He relies that she work late.

On the other hand, deep structure lexical prepositions allow only gerundives:

(93) (c) He went out without her hearing him.
(d) On considering the problem further, he decided to rewrite the paper.

In factive examples the question of the deletion of prepositions is irrelevant, since the rule of FACT-DEL determines the surface structure of sentences like (93.e,f), with the object-marking preposition <u>of</u> retained after nouns and deleted after verbs:

(93) (e) He appreciated (the fact of) her working so hard.
(f) His appreciation of (the fact of) her working so hard.

A corresponding non-factive example demonstrates clearly that either <u>the fact of</u>, or some preposition, must be present to protect gerundivization - otherwise the rules that govern infinitivalization will operate.

(94) (a) He intended to leave early.
(b) His intention of leaving early was thwarted by too much discussion.

## 3. Generic Gerundives

Generic gerundives are always subjectless in their surface form:

(95) (a) Taming lions is dangerous.
(b) *John's taming lions is dangerous.

(c) Climbing mountains is fun.
(d) *John's climbing mountains is fun.

They are paraphrases of <u>for-to</u> (i.e. emotive infinitival) constructions with deleted indefinite subjects:

(95') (a) It is dangerous (for one) to tame lions.
(b) It is fun (for one) to climb mountains.

The existence of this paraphrase relationship suggests that generic gerundives have an underlying indefinite/impersonal subject <u>one</u> which is obligatorily deleted in the derivation from <u>for-to</u> to gerundive. This assumption accounts for the fact that only animate subjects are normally "understood" in subjectless gerundives.  Given a verb that will not accept an animate subject, subjectless gerundives cannot be formed:

> (96)  (a) *Elapsing is dangerous.
>        (b)  Time's elapsing is dangerous.

## 4.  Adverbial Gerundives

These are essentially a residue class.  Consider first the "intransitive" types:

> (97)  He began/ceased/continued/finished/quit/started working.

If the general principles of <u>to</u>-insertion proposed by the Kiparskys and elaborated in Section III.D. above have any validity - and they do seem to generalize a number of othewise apparently idiosyncratic facts - then (97) cannot be said to involve the normal processes of nominalization at all, since EQUI-NP-DEL would remove the subject of the sentential object, and TO-REPLACE-AUX would be obligatory, yielding ungrammatical strings like (97'):

> (97')  *He finished/quit to work.

(The other examples of (97) would be grammatical because they do indeed also operate under the normal rules of infinitivalization.) To claim that these -<u>ing</u> forms are adverbial, as they were historically, is difficult to justify on syntactic grounds.  In the absence of any well-motivated analysis, we mark these "gerundive infinitives" by the feature [+GER], the same exception feature used for <u>avoid</u> and <u>deny</u>, and generate them accordingly, ordering the rules with the [+GER] rule preceding all the rules having to do with infinitivalization and thereby guaranteeing that such consequences as (97') cannot arise. For lack of a better explanation, we handle the gerundives in "transitive" constructions in the same way:

> (98)  I saw/felt/perceived/watched...him moving.

All of these have a corresponding infinitival form generated in the normal way (except with [+TO-DEL]).  It is at least possible that they should be generated as normal embedded progressives with [+TO-BE-DEL]:

(99) (a) I saw him (to be) moving.
     (b) I felt him (to be) moving.

The obvious disadvantage of this proposal is that [TO-BE-DEL] normally applies only when the predicate is adjectival:

(100) (a) I considered him (to be) intelligent.
      (b) I believed him (to be) intelligent.

      (c) *I considered him moving.
      (d) *I believed him moving.

The semantics of this proposal are also rather bad in some instances:

(101) (a) I heard him talking.

This does not imply "I heard that he was talking"; rather it implies something much closer to "I heard him in the act of talking" or some similar adverbial paraphrase. Similar semantic observations can be made for most of the verbs in this class.

In short, we have no satisfactory analysis for the adverbial/ progressive gerundives. There are various ad hoc ways to generate them, but none seem to shed any light on the way they are interpreted, semantically.


## 5. ing-of Gerundives

Constructions like The shooting of the lions, labeled "action gerundives" by Lees (1960), are considered to be lexically derived, like the proposal of a solution, his insistence on that answer, in this grammar. That is, shooting is lexically available as a noun, related derivationally to the verb shoot, and as a noun it may take an object (i.e. it has its own case frame). Such nouns cooccur less freely with a full range of determiners than do the proposal, insistence types, but such constructions as Every shooting of lions that we witnessed was unpleasant are so much better than similar attempts to attach quantifiers and relative clauses to true gerundives, as in *Every shooting lions that I witnessed, that no alternative to lexical derivation is appropriate, given prior decisions in this grammar about the kinds of relationships that lexical derivation may be supposed to characterize.

F. Non-Action Infinitival Tense Constraints

One set of the predicates discussed in III.D.6 permits RAIS-OBJ only if the verb of the sentential object is a non-action predicate (i.e. is marked [+STAT], or has PROG, PERF, or PAST in the AUX):

(102) (a)  I believe that he works very hard.
      (b)  *I believe him to work very hard.

      (c)  I believe that he is working very hard.
      (d)  I believe him to be working very hard.

      (e)  I believe that he has worked very hard.
      (f)  I believe him to have worked very hard.

(102.f) is ambiguous between simple past tense, and perfective aspect:

(103) (a)  I believe that he worked hard yesterday.
      (b)  I believe him to have worked hard yesterday.

      (c)  I believe that he has worked hard all his life.
      (d)  I believe him to have worked hard all his life.

The only constraint which differentiates these structures from the RAIS-OBJ structures with verbs like expect is this restriction to non-action predicates when they undergo infinitival reduction:

(104) (a)  I expect that he will work very hard.
      (b)  I expect him to work very hard.

      (c)  I expect that he will be working very hard.
      (d)  I expect him to be working very hard.

What is needed, then, in order to bring these verbs like believe (a substantial list, including acknowledge, assume, imagine, judge, know, maintain, suppose, think... and others which Lees (1960) analyzed as permitting "2nd Passive" constructions, and which Kiparsky (1968) refers to as accepting "the accusative with infinitive" construction) into the basic pattern of infinitival derivation is some constraint which will subject them to the same rules that expect conforms to except that RAIS-OBJ can be permitted to occur with them only if the conditions for stativity are met in the embedded sentence. Their derivation is otherwise like that of "They expected him to solve the problem" in (85'). The problem is to find a way to say that with some verbs (like expect) the rule RAIS-OBJ is optional provided that the tense of the sentential object is future, and with other verbs (like believe) it is optional provided that the verb of the sentential object is non-action (in the sense defined above).

A device which succeeds in stating the correct generalization is for the rule of RAIS-OBJ to apply only if the matrix predicate is not marked [+STAT REDUC] or [+FUT-REDUC].  Thus a verb of the believe class is [+STAT-REDUC] and [+/-RAIS-OBJ]; if under the convention of obligatory specification, the positive value is chosen, the rule of RAIS-OBJ will apply because the verb is marked [+STAT-REDUC].  There is no constraint on the verb of the embedded sentence, but infinitival reduction will only occur if the predicate is a non-action one, since RAIS-OBJ operates only on non-action predicates if governed by a [+STAT-REDUC] verb.  This is, however, an ad hoc condition on the rule, which suggests that some insight into the nature of the similarity between the believe class and the expect class has been missed in this analysis.  If the matrix verb is marked [-STAT REDUC] the rule of RAIS-OBJ cannot apply.  Similarly, a verb of the expect class is [+FUT-REDUC] in the lexicon, and [+/- RAIS-OBJ].  If the positive value is chosen, and the matrix verb is marked [+FUT-REDUC], the rule of RAIS-OBJ will apply; if the negative value is chosen, the rule of RAIS-OBJ cannot apply.  The verbs believe and expect differ only in the exception features [STAT-REDUC] and [FUT-REDUC].


A small subclass of the [+STAT-REDUC] predicates permits only infinitival reduction, and only non-action complements: e.g. consider:

(105) (a) *I consider that he is intelligent.
      (b)  I consider him to be intelligent.

These are marked [+/-S] (i.e. they don't have to take a sentential object), but [+STAT-REDUC] and [+RAIS-OBJ], so that a sentential object is always infinitivally reduced.

As noted earlier, the verbs say, rumor, claim, and repute are like the believe class except that passivization is obligatory after RAIS-OBJ:

(106) (a)  Someone says that he is intelligent.
      (b) *Someone says him to be intelligent.
      (c)  He is said to be intelligent.

G.  Deep Structure Constraints

    1.  Tense/Aspect Constraints on the Sentential Object
        a.  Future
        b.  NonFuture
        c.  Stative
        d.  NonStative

    2.  Case Constraints between Matrix and Constituent
        a.  Agent Identity
        b.  Dative Identity


1.  Tense/Aspect Constraints on the Sentential Object

    Earlier in several places (III.C.2, III.D.6, III.F) mention
has been made of the necessity to specify the tense of the sentential
object, for some predicates.  Since we have a parameter already
having to do with the mood of the predicate in the sentential object
(Imperative, Indicative, Interrogative), it must be shown that the
present constraint in respect to tense is orthogonal to that one.
Consider the verb insist:

      (107) (a)  I insist that she take the medicine.
          (b)  I insisted that she take the medicine.
          (c)  I insist that she takes the medicine.
          (d)  I insisted that she takes/took the medicine.
          (e)  I insist that she will take the medicine.
          (f)  I insisted that she would take the medicine.

(107.a,b) are imperative embeddings.  (107.c-f) are all indicatives;
the verb insist is factive in these instances and is compatible with
any tense or modal:  all factives are, since the head item fact is.
We must consider, then, non-factive examples.  Most of the predicates
that the Kiparskys (1968) label with the feature [+FUT] in fact
require embedded imperatives (Section III.C.2 above).  We do not
view these as containing a future auxiliary (should, according
to the Kiparskys).  But three items on their list are incompatible
with imperatives:  predict, anticipate, foresee.  Others with the
same property are expect, promise, stipulate, prophesy.  They are
incompatible with subjunctive, and therefore [-IMPER]; but among
indicative possibilities, they are compatible only with future:

      (108) (a) *I predict that he go bankrupt.
          (b) *I predict that he went bankrupt.
          (c) *I predict that he goes bankrupt every day.
          (d)  I predict that he will go bankrupt.
          (e)  I predicted that he would go bankrupt.

These verbs, unlike the [+STAT-REDUC] non-action verbs above (III.F), which are compatible with action sentential objects unless they are infinitivally reduced, are compatible with future sentential objects only, regardless of whether they are infinitivally reducible. In order to take this distinction into account, then, two features are needed with respect to stativity (a strict subcategorial feature [+/-STAT], and a second feature [+/-STAT-REDUC] to provide for reduction); and two features are needed with respect to futurity, a strict subcategorial feature [+/-FUT], to provide for the correct selection, and [+/-FUT-REDUC] to provide for reduction.

There are, then, predicates like predict, anticipate, foresee, expect, promise, stipulate, and prophesy marked with the feature [+FUT], which is an abbreviation, in the form of the features [INDIC] and [IMPER] (65.c,d), requiring that the tense of the predicate in the sentence dominated by NEUT contain the auxiliary will (present or past, in accord with rules of tense sequence). Some of these are also marked [+/-RAIS-OBJ], and therefore permit infinitivalization--e.g. expect, for most dialects, and predict, foresee, and prophesy for some dialects. Promise is [+FUT], [+IDENT], [-RAIS-OBJ], as in (109):

    (109) (a)  I promise that I will leave.
          (b)  I promise to leave.
          (c) *I promise Mary to leave.
          (d) *I promise that Mary left.
          (e)  I promise that Mary will leave.

It is not clear whether there are predicates that must be marked [-FUT]. Consider recollect, recall, remember:

    (110) (a) ?I recollect that she will finish the paper
                  tomorrow.
          (b)  I recollect that she finished the paper
                  yesterday.
          (c)  I recollect that she said she would finish
                  the paper tomorrow.

The sense of (110.a) is that of (110.c), suggesting that perhaps (110.a) is a blend that should not be directly generated. There are, however, no syntactic consequences of the type associated with [+FUT] constraints (infinitival reduction), and the negative feature [-FUT] is therefore not marked in the lexicon.

The predicates with adverbial ("action") gerundives, as in (97), for which in any case we have no satisfactory analysis, appear to be constrained to tense identical with the matrix tense:

(111) (a)  He will continue -- He will work/be working
           He will continue working.
      (b)  He continued -- He worked/was working
           He continued working

No provision is made for this fact in the present analysis.

The feature [+/-STAT] is redundant on the strict subcategorial
feature [+/-[___AGT]] (see LEX).  It is included here because of its
relation to the feature [STAT-REDUC], which constrains infinitival
reduction to non-action predicates in the sentential objects of the
**believe** class.  Except for this syntactic consequence, stativity
would be treated in this grammar like such features as [+/-LIQUID],
a selectional feature that accounts for the unacceptability of (112):

(112) (a)  ? The water broke in two.
      (b)  ? He chewed on the milk.

We would, then, generate (113) without the stativity feature:

(113) (a)  *He was believed to depart.
      (b)  *I considered him to solve the problem.
      (c)  *I thought him to run the race.
      (d)  *He tried to know the answer.
      (e)  *He refused to be certain of the analysis.

2.  Case Constraints between Matrix and Constituent

One feature of this type that plays a role in nominalization
is identity between the agents of the matrix and constituent
sentences.  The predicates of (114) require agent identity; those
of (115) require agent non-identity.

(114) (a)  He tried to do it.
      (b)  *He tried Mary to do it.
      (c)  He began to do it.
      (d)  *He began Mary to do it.
      (e)  He continued to do it.
      (f)  *He continued Mary to do it.

(115) (a)  He yelled for Mary to do it.
      (b)  *He yelled to do it.
      (c)  He advocated for Mary to do it.
      (d)  *He advocated to do it.

The feature [+/-AG IDENT] marks this requirement of agent identity;
and EQUI-NP-DEL applies at the appropriate point in the derivation
to erase the coreferential agent of the constituent sentence.

A second feature, like [AG-IDENT] except that the matrix dative is required to be identical with the constituent agent, provides for examples like (116):

(116) (a)  I forced John to go to prison.
     (b)  I commanded the sergeant to organize the troops.

This feature, [+/-DAT-IDENT], guarantees that sentences like (117) will not be generated:

(117) (a)  *I forced John that Mary leave.
     (b)  *I persuaded Mary that Jane go to prison.

It is possible that such nonsentences can be blocked without this feature, since force requires EQUI-NP-DEL, a rule which would not apply to a string like (117.a).  But since EQUI-NP-DEL is not a boundary-erasing rule, it is not obvious how (117.a) would be blocked merely by the failure of this rule to apply.  What the feature [DAT-IDENT] does is guarantee identical dative and agent so that EQUI-NP-DEL will always apply in such cases.  With sentences like (118), where [DAT-IDENT] is optional, the positive value of the feature provides for infinitival reduction, and the negative value for the clausal form:

(118) (a)  I warned Mary to leave.
     (b)  I warned Mary that she must leave.
     (c)  I warned Bill that Mary must leave.

Sentences like (119) are only apparent counterexamples to the deep structure identity conditions [AG-IDENT] and [DAT-IDENT] because they are derived (though the rule is not provided in this grammar) as optional variants of the "get-passive":

(119) (a)  I tried to be examined by the doctor.
        (I tried to get examined by the doctor.)
     (b)  I forced Bill to be examined by the doctor.
        (I forced Bill to get examined by the doctor.)


H.  Indirect Questions

In section III.B we set up a feature [+/-WH-S] for embedded interrogatives.  It is necessary to distinguish, in respect to the diagnosis of this feature, between true embedded interrogatives and pseudo embedded interrogatives, the latter deriving from relative clauses on deletable head nouns.  The following are true indirect questions:

(120)

$$\text{I didn't} \begin{cases} \text{(a) know} \\ \text{(b) care (about)} \\ \text{(c) remember} \\ \text{(d) realize} \\ \text{(e) take into account} \end{cases} \begin{cases} \text{who left early} \\ \text{what happened} \\ \text{where they went} \\ \text{when they arrived} \\ \text{why they did it} \\ \text{how they did it} \end{cases}$$

All such sentences may be paraphrased by inserting "the answer to the question" in the blank between the column of predicates and the column of questions in (120). The following, on the other hand, are pseudo embedded interrogatives:

(121)

$$\text{I didn't} \begin{cases} \text{(a) like} \\ \text{(b) hate} \\ \text{(c) recognize} \\ \text{(d) suspect} \\ \text{(e) deny} \end{cases} \begin{cases} \text{what happened} \\ \text{where they went} \\ \text{why they did it} \end{cases}$$

The pseudo embedded interrogatives of (121) appear to involve deletable head nouns (with appropriate morphophonemic changes) of the form shown in (121'):

(121')

$$\text{I didn't} \begin{cases} \text{(a) like} \\ \text{(b) hate} \\ \text{(c) recognize} \\ \text{(d) suspect} \\ \text{(e) deny} \end{cases} \begin{cases} \text{the thing that happened} \\ \text{the place to which they} \\ \quad \text{went} \\ \text{the reason for which they} \\ \quad \text{did it} \end{cases}$$

There are little-understood restrictions on the formation of pseudo interrogatives, such as the impossibility of *I didn't like who left early from I didn't like the person who left early, but it is clear that their interpretation is quite different from the interpretation of true embedded interrogatives, and only the latter may be derived as nominalizations.

The true indirect questions, but not the pseudo ones, are subject to infinitivalization under the same conditions as other nominalizations, namely whenever the subject of the embedded sentence is removed from the possibility of subject-verb agreement. The only condition that will remove it, since there is no possibility of RAIS-SUBJ or RAIS-OBJ or FOR-INSERT with such structures, is EQUI-NP-DEL:

(122) (a)  I don't know -- What will I do
           I don't know what I will do.
           I don't know what to do.

     (b)   I didn't take into account -- How would I do it
           I didn't take into account how I would do it.
           I didn't take into account how to do it.

For all such infinitivalizations, the indirect question must be
future in its auxiliary, a constraint which is handled exactly as
with verbs like expect (Sections III.F, III.G.1).  For reasons which
remain mysterious, clauses with why disallow infinitival reduction:
*I don't know why to do it.


I.  Miscellaneous Exception Features

     1.  TO-DEL
     2.  TO-BE-DEL
     3.  EXTRA
     4.  RAIS-OBJ-TO-SUBJ
     5.  SUBJ-SUBJ-IDENT


1.  TO-DEL

     The analysis provided for infinitivalization in a wide range
of cases (e.g. those with raising of subject to object, like expect;
those with the dative erasing the embedded subject, like force;
those with the matrix agent erasing the embedded agent, like try;
those with raising of embedded subject to matrix subject, like
likely) also provides for predicates like see, watch, observe, make,
help, hear...except that an ungrammatical intermediate stage is
generated:

          (123) (a)  I saw -- He dug a hole in the ground.
                         [Like expect]
                    *I saw him to dig a hole in the ground.  [by
                         RAIS-OBJ, TO-INSERT]
                     I saw him dig a hole in the ground.  [by TO-DEL]

               (b)  I made him -- He dug a hole in the ground.
                         [Like force]
                    *I made him to dig a hole in the ground.  [by
                         EQUI-NP-DEL, TO-INSERT]
                     I made him dig a hole in the ground.
                         [by TO-DEL]

               (c)  I helped -- I dug a hole in the ground.  [Like
                         try]
                     I helped to dig a hole in the ground.  [by
                         EQUI-NP-DEL, TO-INSERT]
                     I helped dig a hole in the ground.  [by optional
                         TO-DEL]

These are analyzed, then, as perfectly normal infinitival nominalizations with the single peculiarity of to-deletion (obligatory in most instances, optional at least with help).


2.   TO-BE-DEL

"To be" is optionally deletable in infinitival nominalizations with verbs like consider, believe, think, and obligatory with the verb elect:

>       (124) (a)  I consider him (to be) intelligent.
>             (b)  They elected him president.

The predicates which allow or require this deletion must be marked with the exception feature  [ +TO-BE-DEL], since it is not deletable on any general or configurational basis:

>       (125) (a)  I want him to be president.
>             (b)  *I want him president.
>
>             (c)  I expect him to be intelligent.
>             (d)  *I expect him intelligent.


3.   EXTRA

Extraposition, as discussed in Section III.D.3, is a dimension orthogonal to factivity.  It is, nevertheless, a highly redundant feature and needs to be marked as an exception feature, either plus or minus, in only a small number of instances.  All the factive predicates that have subjectivalization of the sentential object or instrumental allow extraposition optionally:

>       (126) (a)  It is significant/odd/tragic/exciting/
>                  irrelevant...that she can't solve the
>                  problem.
>             (b)  It doesn't matter/count/make sense/suffice/
>                  amuse me/annoy me/amaze me...that she
>                  can't solve the problem.

All the non-factive adjectival predicates with subjectivalization of the sentential object require extraposition:

>       (127) (a)  It is likely/sure/possible/true/false that
>                  she solved the problem.

All of the non-factive verbal predicates with subjectivalization of
the sentential object require extraposition:

> (128) (a) *That she solved the problem seems/appears/
> happens...
> (b) It seems/appears/happens that she solved the
> problem.

With all examples of the types (126-128), then, extraposition is
predictable from other features. That is, extraposition from sub-
ject position is an ungoverned rule.

But extraposition from object position is governed by an
unpredictable exception feature [+/-EXTRA]. The evidence that it
is governed is cited above (II.B.5). This is a surprising fact, for
which we have no general explanation. Somehow, extraposition from
object is a dubious rule.


4. RAIS-OBJ-TO-SUBJ

Consider now the famous examples always cited in demonstra-
tion of the distinction between deep and surface structure:

> (129) (a) John is eager to please.
> (b) John is eager -- John will please one.
>
> (c) John is easy to please.
> (d) One pleases John -- is easy.
> (e) For one to please John is easy.
> (f) It is easy to please John.

(129.a) is a straightforward instance of obligatory EQUI-NP-DEL,
and deletion of the indefinite/impersonal object one. But nothing
in the analysis so far will derive (129.c). We can derive John is
certain to learn the secret, which depends on an early RAIS-SUBJ
rule, as discussed in section III.D.6. But here we have an other-
wise similar instance, except that it is the object of the embedded
sentence which is raised to subject of the matrix sentence. (The
same distinction between easy and certain would hold under any
other analysis -- IT-Replacement (Rosenbaum), or a version of the
present analysis in which (129.f) is taken as an intermediate
stage between (e) and (c).) It appears, then, that a feature
[+/-RAIS-OBJ-TO-SUBJ] must appear on adjectives like easy, difficult,
hard..., governing the same early rule of raising to subject that
is governed by [RAIS-SUBJ]. What is curious, however, is that in
other instances where an NP is raised out of a lower sentence, in-
finitivalization is automatic because no subject remains to agree
with the verb; in this instance, the subject remains, but since the

only predicates which have this feature also have the feature
[+EMOT], infinitivalization takes place anyway, and provided that
the subject is indefinite/impersonal and therefore deletable, the
sentence (129.c) turns out, by a very abstract derivation of
several steps, to have the same surface structure as (129.a):

> (130) (a) Easy -- One pleases John.
>       (b) Easy -- for one to please John.
>             [FOR-INSERT, TO-REPLACE-AUX]
>       (c) John is easy -- for one to please
>             [RAIS-OBJ-TO-SUBJ, BE-INSERT]
>       (d) John is easy -- for to please.
>             [ONE-DEL]
>       (e) John is easy to please.
>             [PREP-PREP-DEL]

## IV.  THE RULES OF NOMINALIZATION

A.  GER
B.  FACT-DEL
C.  FOR-INSERT
D.  EQUI-NP-DEL
E.  RAIS-OBJ
F.  RAIS-OBJ-TO-SUBJ
G.  RAIS-SUBJ
H.  TO-REPLACE-AUX
I.  TO-DEL
J.  TO-BE-DEL
K.  ONE-DEL
L.  THAT-INSERT
M.  EXTRA
N.  THAT-DEL

## A.  GER (Factive), GER (Non-factive)

Factive gerundivization applies first, and appropriate conditions
exclude non-factives from participation in this rule.  Non-factive
gerundives are assumed either to be governed by a feature [+GER] or
a preposition, or to be generic alternatives of _for-to_ constructions
(see Section III.E.3) generated by late optional rules.  Only the
factives and governed gerundives are provided for in the rules
below.  Adverbial gerundives (III.E.4) are treated as governed.

This rule is strictly ordered in respect to a number of subsequent
rules: it must precede FACT-DEL because "the fact of" is part of

the environment essential to stating the permitted gerundization;
it must precede all the rules of infinitivalization, since the
"tense" category of the embedded sentence is replaced by <u>to</u>
unless it has already been removed by gerundivization.

1.  Schematic of GER (Factive)

```
                NP                                    =>
         D            NOM
        the         N    PREP        NP
                   fact               S
                            #  NP   MOD   PROP   #
                                    AUX
                               TE  (M)  (PERF)  (PROG)
                          (PAST)
```

```
                NP
         D            NOM
        the         N    PREP        NP
                   fact               S
                            #  NP    MOD    PROP   #
                              NP POSS  AUX
                                  ing (PERF)  (PROG)
```
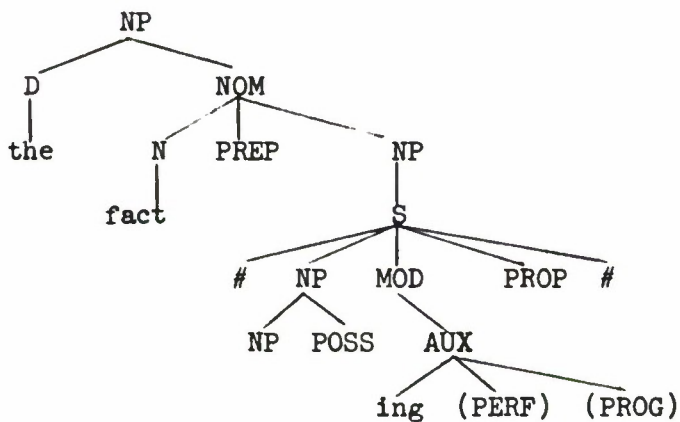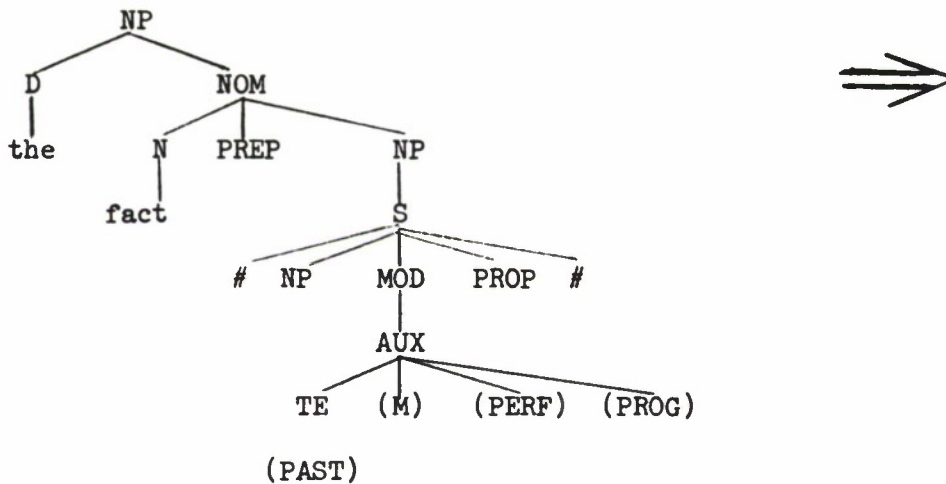
2.  The rule GER (factive)

S.I.  ${}_1$X ${}_{NP}$[the fact PREP ${}_{NP}$[${}_S$[#${}_J$ NP ${}_{AUX}$[ TE (M) (PERF) (PROG)] X

                1             2     3  4  5    6    7

S.C. (a) Attach [+GENITIVE] to 2
  (b) If 3 = PAST and 5 - ∅, attach PERF as left sister of 6
  (c) <u>ing</u> replace 3 + 4
  (d) [-EQUI-NP-DEL] replaced by [+EQUI-NP-DEL]

3. Notes on the rule: for discussion see Sections III.E.1, III.E.2.

4. Examples: see (88), (93).

GER (Non-factive)

Since the factive gerundive rule depends on the presence of <u>fact</u> as the head item governing the actant which dominates the nominalization, structures to which the non-factive gerundive rule applies do not meet the structure index above, nor do the factive ones meet the structure index below, since it is a governed rule requiring the feature [+GER], or a preposition.

5. Schematic of GER (Non-factive)
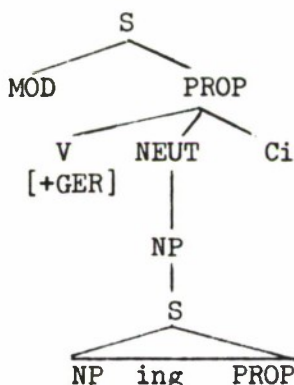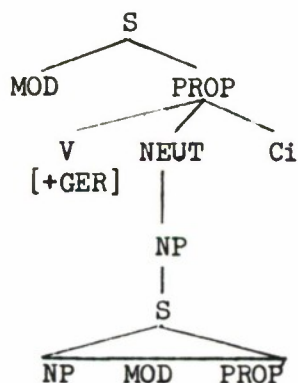


6. The rule of GER (Non—factive)

S.I. $X \begin{Bmatrix} PREP \\ V,N \\ [+GER] \end{Bmatrix} \, ^{NP}[X \, ^{S}[X \, [X \underline{\quad\quad} AUX \underline{[TNS]} \, X$

  1  2        3             4      5

S.C. (a) <u>ing</u> replaces 4
  (b) [-EQUI-NP-DEL] replaced by [+EQUI-NP-DEL]

7. Notes on the rule: for discussion see Sections III.E.1, III.E.2, III.E.4.

8. Examples: see (87), (89), (94.b).


Problem. There is a major unresolved problem not discussed earlier nor handled in this rule, in connection with EQUI-NP-DEL in gerundive nominalizations. Consider the following examples:

(131) (a)  Bill imagined that he was leaving.
      (b)  Bill imagined himself to be leaving.
      (c)  Bill imagined leaving.
      (d) *Bill imagined to be leaving.

Suppose imagine is marked [+/-RAIS-OBJ], [-EQUI-NP-DEL], and [+/-GER]. It is, like consider, [+STAT-REDUC] also. Now, if [+GER] is chosen (131.c) is the output. If [-GER], then there is no way to block (131.d), since EQUI-NP-DEL will apply and then TO-REPLACE-AUX. If it is marked [-EQUI-NP-DEL], as is the case for verbs of the consider class, then (131.d) will not be generated, but neither will (131.c). Clearly within this grammar some important generalization has been missed, since we must enter imagine twice in the lexicon: once with [+/-RAIS-OBJ], [-EQUI-NP-DEL], and [+STAT-REDUC], like verbs of the consider class; and again with [+GER] and [+EQUI-NP-DEL], like avoid.

But the problem of EQUI-NP-DEL meets a much more difficult obstacle when it appears that we have no effective way to state EQUI-NP-DEL at all in gerundive nominalizations. Consider the following examples:

(132) (a)  I told Mary about seeing John.
      (b)  I asked Mary about seeing John.

In (132.a) the embedded sentence is "I saw John." In (132.b) it is, in one reading, "Mary saw John." Probably (132.b) should be explicated in a way parallel to the explication we propose for (133):

(133) (a)  I asked him what to do.
      (b)  I asked him to tell me what to do.
      (c)  I told him what to do.

That is, we claim that the peculiarity in the EQUI-NP-DEL of (133.a) results from deletion of the underlined material of (133.b), which is completely regular as to EQUI-NP-DEL:

```
I asked |him|  --
        |he | tell |me|  --
                  |I | do wh-something
```

But now, in order to provide for EQUI-NP-DEL, we are introducing
deletions of strings that are difficult or impossible to recover.
Consider a more extreme case of the same sort:

(134) (a)  Mary told me about the plans for shooting
           himself that John had been laying all summer.
      (b) *Mary told me about the plans for shooting
           herself that John had been laying all summer.

Why is (134.b) bad?  Because we only discover in the final relative
clause that the subject of "plan to shoot herself" must be John,
not Mary.  But how can EQUI-NP-DEL come about correctly in (134.a)
when there is no noun present to be deleted?  It is only inferred
from the relative clause that the agent of plan would be "John," if
it were present.  If it were present, it would correctly delete the
subject of "John shoot himself," but there would be nothing to
delete the John of "John's plan," unless there is some sort of
totally mysterious rule that permits deletion upward from a relative
clause.

     A related problem in stating EQUI-NP-DEL in gerundive
nominalizations resides in the general fact that nouns have
subjects (i.e. AGT or DAT in deep structure) which often have to
be inferred at two or three removes, and yet which can bring about
EQUI-NP-DEL of noun subjects of clauses embedded as cases under
the head noun.  Thus:

(135) (a)  He has no objections to studying French.
      (b)  He spoke at some length about the various
           objections to studying French that had prevented
           him from doing it in high school

Clearly, even if the POSS of "objections" in (135.a) is relatively
accessible as the matrix subject, it is thoroughly buried in (135.b);
yet in both cases the deleted subject of the gerundive may be "he"
under one reading.  It is possible, however, that such readings are
wrong: it may be in both examples that the correct reading is either
subjectless or perhaps one's (studying French).  But the problem
remains in examples like (136), where the indefinite subject, or

or subjectless, interpretations are hard to defend:

> (136) (a) The interest in visiting Las Vegas that Mary
> displayed...
> (b) The addiction to smoking pot that caused John's
> death...
> (c) The exhaustion from overindulging in sex that
> eventually ruined his eyesight...

In sum, we cannot yet state the conditions for EQUI-NP-DEL in gerundive nominalizations; we have included the regular instances ("He avoided leaving") in the regular EQUI-NP-DEL rule, along with the ones that produce infinitives, avoiding the problem of _imagine_ by a form of double-entry book-keeping; and we suggest, in our discussion of the rule, a way to handle the almost-regular examples like "She has no objections to studying French"; but examples like (134) and (136) are beyond these rules.


B. FACT-DEL

This rule deletes the noun _fact_, its determiners and any prepositioned modifiers (e.g. _very_ in The very fact of his having crashed proves it), and the preposition _of_ that marks its object. The rule must precede FOR-INSERT in order to guarantee that those predicates which are both factive and emotive can appear in either that-S or for-to-S constructions (e.g. It was a tragedy that he did that, It was a tragedy for him to do that); the latter possibility would be blocked if FOR-INSERT preceded this rule. It must precede EQUI-NP-DEL to guarantee getting I regretted solving the problem but not *I regretted my solving the problem, since EQUI-NP-DEL does not apply across an intervening head noun _fact_; from this it follows that these rules claim that I regretted the fact of my solving the problem is grammatical, but that *I regretted the fact of solving the problem is not (unless it is from indefinite-NP-deletion).

1. Schematic of FACT-DEL

2. The rule of FACT-DEL

S.I.   X   $^{NP}[$ the X Fact of$]$   $^{NP}[S]$ X

       1         2         3
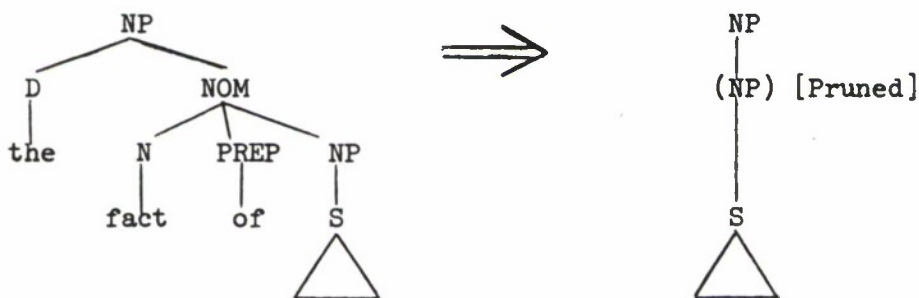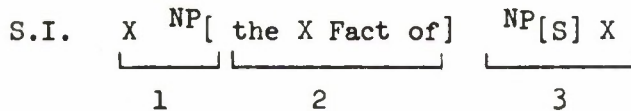
S.C.   Erase 2

Condition:   The rule is optional unless 1 contains the
                  feature [-FACT-DEL], in which cast it cannot apply.

3. Notes on the rule: A general convention prunes the NP which is
exclusively dominated by another NP.  The condition on the rule
is to prevent deletion of _fact_ with a small number of predicates
which do not permit it: *He contemplated that she was leaving/
He contemplated the fact that she was leaving.

4. Examples:  see (50)-(54), (57), (61).

C. FOR-INSERT

The rule must follow FACT-DEL, since a sentential object of _fact_
may become object of a [+EMOT] predicate after _fact_ is deleted and
thereby subject to this rule, and it should also be ordered prior to
EQUI-NP-DEL in order to guarantee that "It scared him for Mary to
jump" and "It scared him to jump" will have parallel derivations--
i.e. both from [+EMOT], with EQUI-NP-DEL in the second instance,
giving "It scared him for-to jump", with _for_ deleted by the general
PREP-PREP-DEL rule.  The reverse order would derive "It scared
him to jump" by EQUI-NP-DEL, without FOR-INSERT applying at all, or
perhaps applying vacuously.  It is convenient, but not mandatory,
to order the rule prior to the general case placement rules,
since with that ordering the governing item is to the left of the
sentential complement, whether that complement is subsequently to
be placed to the left of the predicate, as its subject, or to
the right, as its object.

1. Schematic of FOR-INSERT
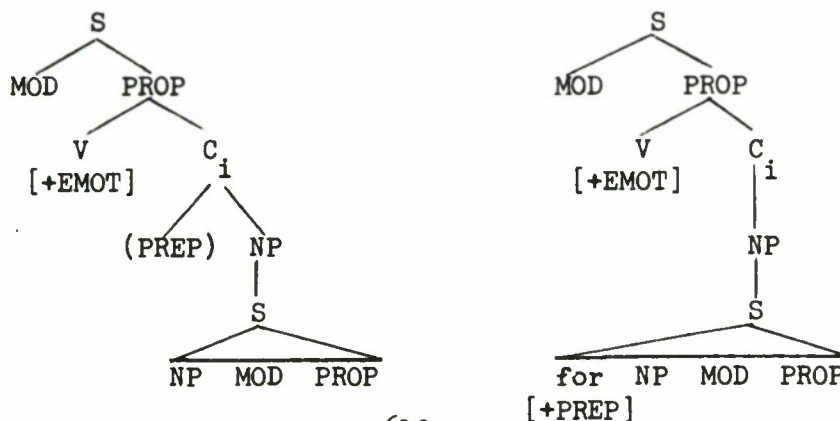
$C_i$ = NEUT or INS

PREP present if non-factive; in the factive instances, it has been deleted by FACT-DEL

2. Rule of FOR-INSERT

$$S.I. \quad X \left\{ \begin{array}{c} N \\ [+EMOT] \\ V \\ [+EMOT] \end{array} \right\} \left\{ \begin{array}{c} NEUT \\ INS \end{array} \right\} \quad [ \; (PREP) \quad {}^{NP}[{}^{S}[\# \; NP \; X$$

$$\underbrace{\hspace{3cm}}_{1} \qquad 2 \quad \underbrace{\hspace{1cm}}_{3} \; 4 \; 5$$
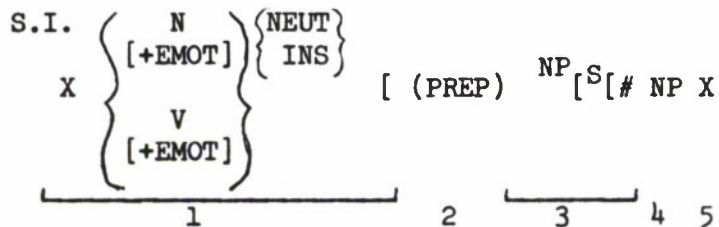
S.C. (a) 2
  (b) Attach for      as left sister of 4
        [+PREP]

3. Notes on the rule: The optionality of the rule is regulated in the lexicon, so that <u>desirable</u>, e.g. is [+/-EMOT] to provide for both "It is desirable that he do it"/"It is desirable for him to do it."

4. Examples: (70), (71).


D. EQUI-NP-DEL

This rule must precede RAIS-OBJ, since that rule raises the subject of the embedded sentence up into the object of the matrix, where reflexivization would be expected (*<u>He wanted himself to go</u>) rather than deletion (<u>He wanted to go</u>): i.e., EQUI-NP-DEL erases the subject of a lower S on the basis of a coreferential NP in the higher S. The rule must follow FACT-DEL in order to account for <u>He forgot about having done it</u>, and it must follow GER to account for <u>He insisted on doing it.</u> The rule operates with a set of priorities, such that a coreferential dative in the higher S has first erasure; in the absence of a coreferential dative a coreferential agentive may bring about the erasure. This priority principle, for which we can provide no explanation, implies that the derived structure is always unambiguous, i.e. that the deleted item is uniquely recoverable. With all instances that result in infinitivalization this appears to be true: such types as <u>He persuaded me to leave</u>, <u>He wanted me to leave</u>, <u>He told me to leave</u>, <u>He expected to leave</u>, <u>He taught her how to do it</u>, etc. are unambiguous. There are

examples with gerundives in prepositional phrases, however, which
are ambiguous: He told her about solving the problem, where one
sense is factive ("He told her about the fact that he had solved the
problem"), the other sense apparently non-factive ("He told her how
to solve the problem").  In the first sense, the wrong item performs
the erasure (the agentive he, not the dative her): in the second
sense, the dative performs the erasure, and the sense is correct
if we assume a subjunctive in the embedded sentence ("He told her
about - she SJC solve the problem").  A priori, one feels that the
second sense has a dummy manner nominal that has been deleted:
He told her about - (a way of) - she SJC solve the problem -  He told
her about (a way of) solving the problem, which provides some explana-
tion of the fact that it paraphrases He told her how to solve the
problem.  With this possibility of a source for the second sense
in mind, we may reexamine the problem of the first sense in an
example like He argued with her about reporting the accident,
which seems ambiguous as between "they report the accident," "the
fact that he had reported the accident," and "the fact that she
had reported the accident."  If He argued with her comes from He
and she argued..., one reading would be explained, but the ambiguity
would not be, since He and she argued about reporting the accident
clearly does not have either of the other interpretations.  From
such examples we conclude that the dative-agentive priority erasure
principle is valid, if at all, only for nominalizations directly
dominated by the actant NEUT in the same case frame as DAT and AGT.
This does not explain the difficult examples above with about: it
merely sets them aside for some different principle, or some modi-
fication of this one, to explain.  (It sets them aside on the assumption
that about NP in tell about NP and argue about NP are instances of
some actant other than NEUT, perhaps "Associative"; at any rate a
case can be made from "tell something about" and "argue the decision
about" that they are not ordinary neutral objects marked with about.)

A second problem has been alluded to above in the discussion
of the gerundivization rule: namely the fact that in some kinds of
sentences the rule of EQUI-NP-DEL seems to apply transparently
through noun heads which directly govern the embedded sentence.

(137) (a)  Mary has a certain fondness for telling lies.
      (b)  I have no objection to studying French.
      (c)  I take great pride in working hard.

It may perhaps be argued that "have fondness" = "be fond", "have
objections" = "object", and "take pride" = "be proud" or the like;
but there are grave difficulties in the way of such a proposal.
Assuming that such phrases are neither lexical units nor trans-
formationally derived, the rule of EQUI-NP-DEL must see through them
to the subject NP: i.e. such nouns are "transparent" in some quite
unclear sense, for this rule - this fact is left unformalized in

the rule as formulated below.

1. Schematic for EQUI-NP-DEL with erasure by coreferential Dative
   (the circled NP's are coreferential)
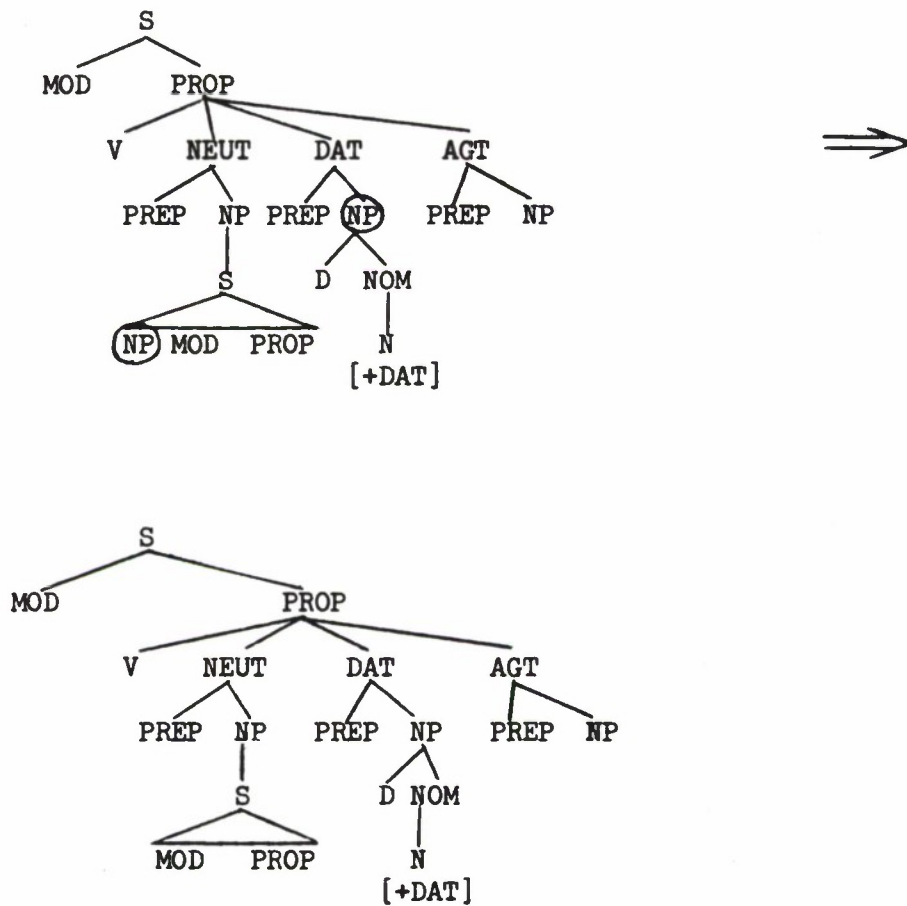
Schematic for EQUI-NP-DEL with erasure by coreferential agentive
(the circled NP's are coreferential)
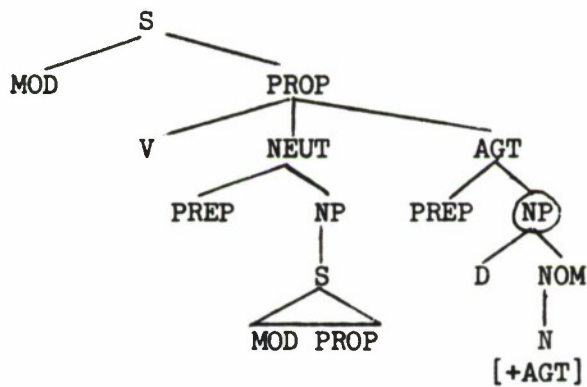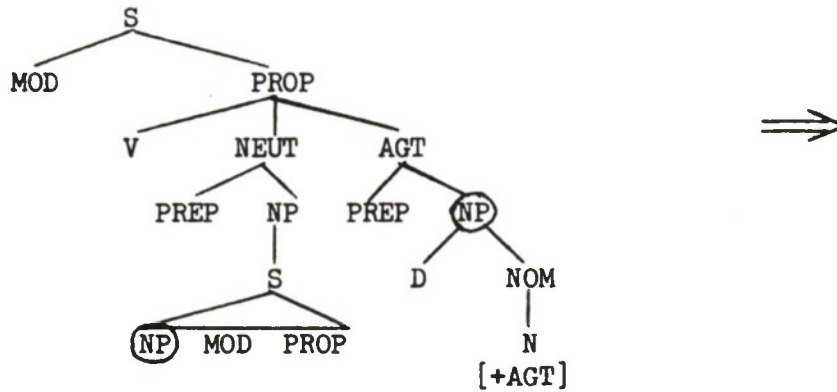


2. Rule for EQUI-NP-DEL

S.I.    X $^{NP}[$ $^{S}[$ NP X$]$ $^{DAT}[$X NP$]$ X $^{AGT}[$X NP$]$

        1          2              3            4

S.C  Erase 2
     Condition:  2 = 3, or if 2 ≠ 3 or if 3 is null, then 2 = 4.

3. Notes on the rule: see discussion in Sections II.B.6, III.D.4, III.D.5. Examples of the type He screamed to jump perhaps should be taken as [+EMOT], i.e. He screamed for someone to jump - they may achieve infinitivalization by the [+EMOT] route, rather than by the EQUI-NP-DEL route: this is borne out partially by the fact that *He screamed to Mary to jump is ungrammatical, whereas He screamed to Mary for her to jump is well-formed.

4. Examples: (79) - (83).


E. RAIS-OBJ

This rule applies before the early objectivalization rule, to which it is an optional alternative for most predicates, the former rule being inapplicable if this one has applied. It takes the subject of an S dominated by NP and attaches it as right sister of the V in the immediately dominating proposition, i.e. it makes it the object of the matrix verb. The optionality of the rule is determined by the convention of obligatory specification which permits the selection of either plus or minus on the feature [RAIS-OBJ] except for a few predicates like consider which are plus only.

1. Schematic of RAIS-OBJ



2. The rule RAIS-OBJ

S.I.   X  $_S$[ # MOD  $_{PROP}$[ V PREP  $^{NP}$[ $^S$[ # NP X

        |_____1_____|  2  3  |___4___|  5  6
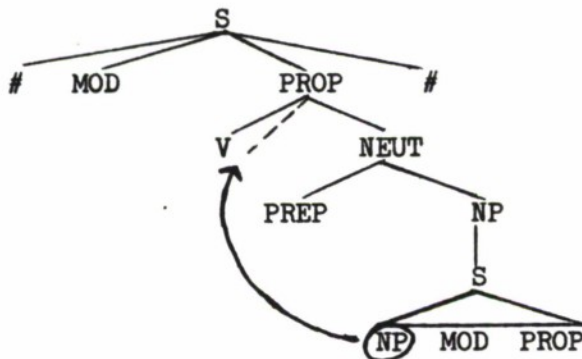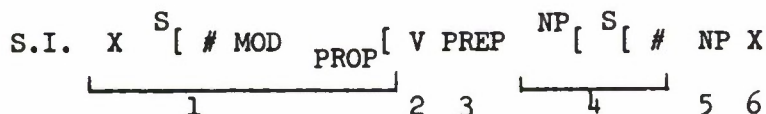

S.C.  (a)  Attach 5 as right sister of 2
      (b)  Erase 3 and 5

      Condition:  2 contains the feature [+RAIS-OBJ] and does
                  not contain the features [-STAT-REDUC] or
                  [-FUT-REDUC].

3. Notes on the rule: for discussion see Sections III.D.c.b, III.D.7, III.F. PREP (3) is erased because the general objectivalization rule, which would have erased it, is no longer applicable.

4. Examples: see (85), (85').


F. RAIS-OBJ-TO-SUBJ

This rule is disjunctively ordered with respect both to RAIS-SUBJ and the general case placement rules. It takes the object of an S dominated by NP and attaches it as right sister of the boundary of the next higher S - that is, it makes it the subject of the matrix sentence. The optionality of the rule is determined by the convention of obligatory specification which permits the selection of either plus or minus on the feature [RAIS-OBJ-TO-SUBJ].

1. Schematic of RAIS-OBJ-TO-SUBJ
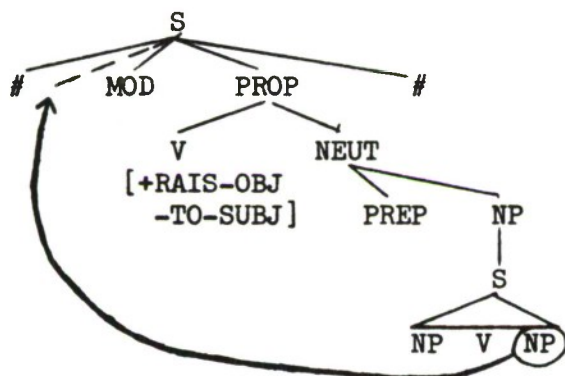


2. The rule RAIS-OBJ-TO-SUBJ

S.I.   X $^S$[ # MOD $_{PROP}$[X $^{NP}$[ $_S$[X V NP X

$\underset{1}{\underline{\qquad}}$ 2 $\underset{3}{\underline{\qquad}}$ 4 $\underset{5}{\underline{\qquad}}$ 6 7

S.C. (a) Attach 6 as right sister of 2
     (b) Erase 6

     Condition: 4 contains the feature [+RAIS-OBJ-TO-SUBJ]
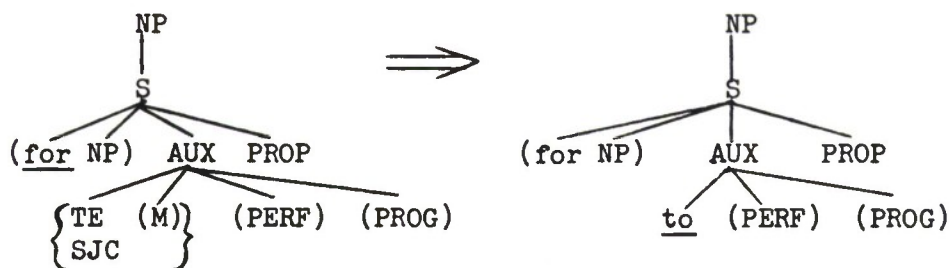
3. Notes on the rule: for discussion see Section III.I.4.

4. Examples: see (129), (130).

G.  RAIS-SUBJ

   This rule applies before the early subjectivalization rule.
It takes the subject of an S dominated by NP and attaches it as
right sister of the boundary of the next higher S--that is, it
makes it the subject of the matrix sentence.  The rule is an
optional alternative to the general subjectivalization rule, the
latter being inapplicable if this one has applied.  The optionality
of the rule is determined by the convention of obligatory speci-
fication which permits the selection of either plus or minus on
the feature [RAIS-SUBJ].

1.  Schematic of RAIS-SUBJ
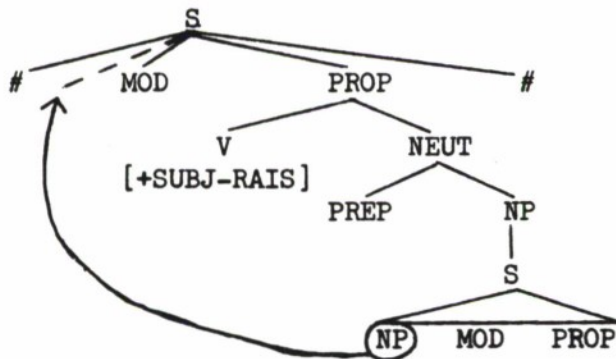


2.  The rule RAIS-SUBJ

S.I.   $X \quad [ \quad \# \quad MOD \quad PROP[ \quad X \quad NP[ \quad S[\# \quad NP \quad X$
       $\underbrace{\phantom{X}}_{1} \quad 2 \quad \underbrace{\phantom{MOD PROP}}_{3} \quad 4 \quad \underbrace{\phantom{NP}}_{5} \quad 6 \quad 7$

S.C.   (a)  Attach 6 as right sister of 2
       (b)  Erase 6

       Condition:  4 contains the feature [+RAIS-SUBJ]

3.  Notes on the rule:  for discussion see Sections III.D.6.a,
    and III.D.7.

4.  Examples:  see (84c), (84').


H.  TO-REPLACE-AUX

   The rules which set the stage for this rule--i.e. which
establish the conditions necessary for it to apply, namely the

condition that there be no NP on which subject-verb agreement can be hinged--have applied in the order presented above, except for the rule which assigns accusative case to the NP's after prepositions and verbs (see PRO paper), which applies also before this rule. RAIS-OBJ has removed the erstwhile subject of the sentential object of verbs of the <u>expect</u> class; RAIS-SUBJ has removed the subjects of the sentential objects of predicates of the <u>likely</u> class, and also of the "II Passive" class; FOR-INSERT has provided the condition for assigning accusative to the subject of sentential objects of the [+EMOT] class.

1. Schematic of TO-REPLACE-AUX



2. Rule for TO-REPLACE-AUX

S.I. $X \quad _{NP}[\quad _S[(\underline{for}\ NP) \quad \begin{Bmatrix} TE(M) \\ SJC \end{Bmatrix} \quad (PERF)\ (PROG) \quad X$

$\underbrace{\qquad\qquad\qquad\qquad}_{1} \qquad 2 \qquad \underbrace{\qquad\qquad}_{3} \qquad 4$
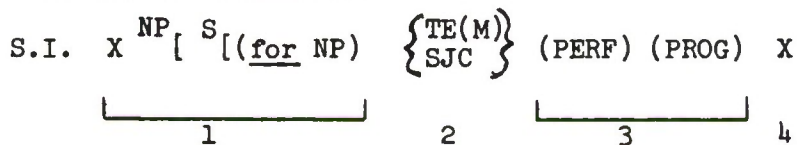
S.C. (a) <u>to</u> replaces 2.
      (b) attach PERF as right sister of 2.

3. Notes on the rule: The rule must apply after subjectivalization, since otherwise the subject with which the verb would agree would still be under PROP. For further discussion, see III.D.

4. Examples: (69), (79), (81), (84), (85), (86).


I. TO-DEL

1. Schematic of TO-DEL
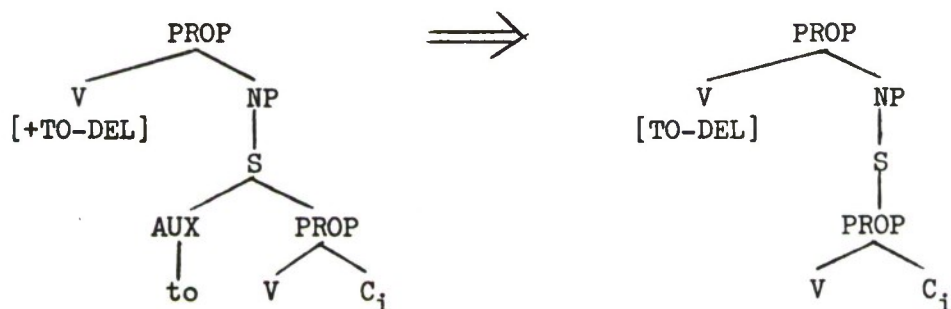
2. Rule for TO-DEL

S.I.   $X_{\text{PROP}}[\ [_{V\ \text{TO-DEL}}]\ ^{\text{NP}}[\ ^{S}[\ \#\ ^{\text{AUX}}[\text{to X}]\ V\ X$

$\underbrace{\hspace{5cm}}_{1}\quad \underbrace{\hspace{1cm}}_{2}\ \underbrace{\hspace{1cm}}_{3}$

S.C.   Erase 2.

3. Notes on the rule: for discussion see III.I.1.

4. Examples: (123).


J.   TO-BE-DEL

   The be which is deleted by this rule comes either from
the base as a V (with a following NP), or is supplied by the early
rule of BE-SUPPORT (with adjectives). The rule does not delete
be from PROG (i.e. the auxiliary be), which in fact is still simply
PROG at this stage in the derivation and therefore not available
for deletion.

1. Schematic of TO-BE-DEL
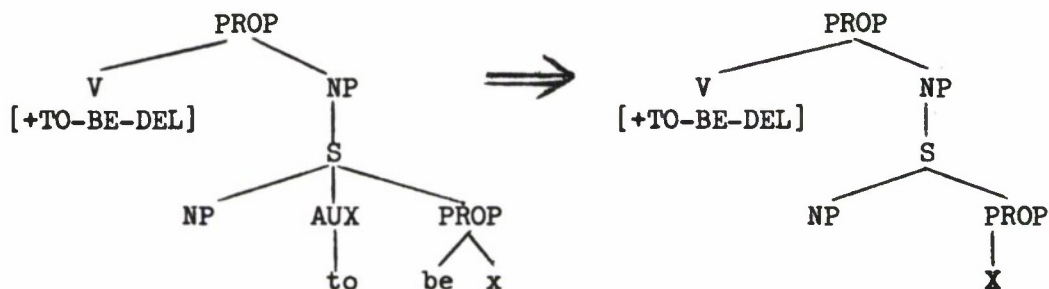


2. Rule of TO-BE-DEL

S.I.   $X\ ^{\text{PROP}}[\ [_{\substack{V\\ +\text{TO-BE-DEL}}}]\ ^{\text{NP}}[\ ^{S}[\ X\ \text{to}\ ^{\text{PROP}}[\ \text{be}\ X$

$\underbrace{\hspace{5cm}}_{1}\qquad \underbrace{\hspace{1cm}}_{2}\ \underbrace{\hspace{1cm}}_{3}\ _{4}\ _{5}$

S.C.   Erase 2 + 4

3. Notes on the rule: for discussion see III.I.2.

4. Examples: (124), (125).

K.  ONE-DEL

The deletion of the indefinite/impersonal one can only occur in for-infinitival or POSS-ing constructions derived from them; and only when these are subjectivalized or essive.  The appropriate deletion in infinitives linked by the copula is not provided for here, since the derivation of such nominalizations has not been provided for in this grammar.

There is some reason to believe that sentences like "to know her is to love her" are derived from conditional sentences. In any case, they provide a special problem for this grammar, since we have no natural way to explain why they are infinitives at all, there being not [+EMOT] governing item in the fuller form "For one to know her is for one to love her."

1.  Schematic of ONE-DEL
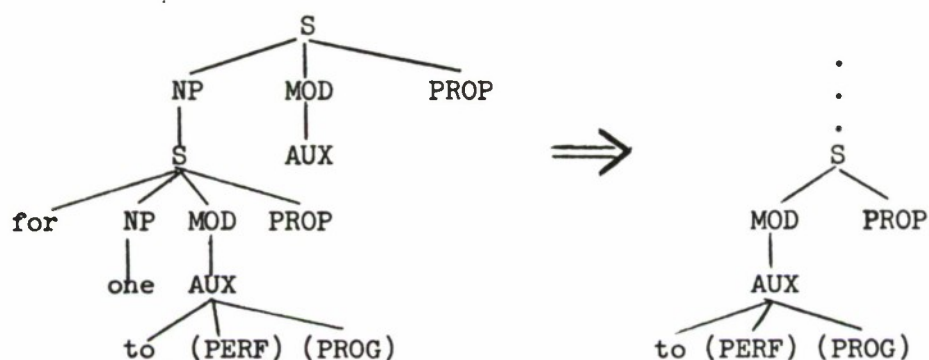


2.  Rule for ONE-DEL

S.I.   X  $_{NP}[$ $^S[$ #  for NP $^{AUX}[$to X
       |_____|  |____|  |____|
            1           2       3

S.C.   Erase 2

       Condition:  The rule is optional.

3.  Notes on the rule:  the rule as it stands is useless for all examples like "To know her is to love her", since no provision is made for them.  For examples like "It is amusing to collect butterflies", however, the rule does provide.  Since generic gerundives are assumed to derive in turn from these infinitivals (i.e. "To collect butterflies is amusing" is taken to be the source of "collecting butterflies is amusing"), though not provided for in these rules, there are necessarily no examples

of one + POSS deletion; the ungrammaticality of "One's collecting butterflies..." is explained in this way. These infinitivals, in turn, may derive from conditional sentences in ways we do not yet understand.
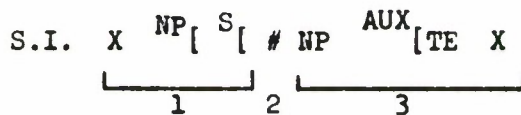
L.  THAT-INSERT

This rule must be placed quite late in the grammar; at least after relativization (for reasons see REL paper). The conditions for its operation will obtain at any middle-to-late stage in the derivation. All that is really needed is to be able to identify an S dominated by NP, where the AUX of the S still contains tense, and the S still has a subject.

1.  Schematic of THAT-INSERT
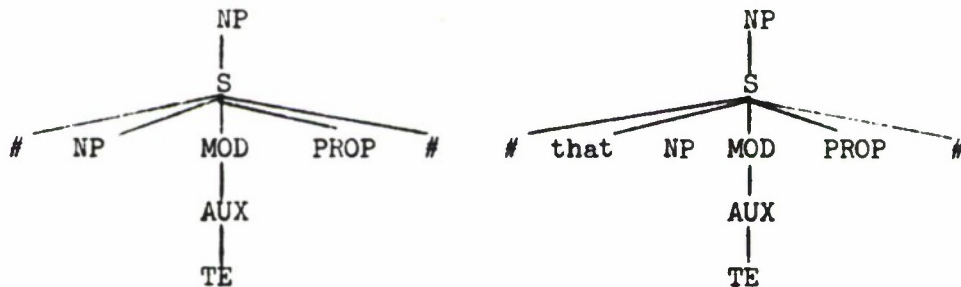


2.  The rule of THAT-INSERT

S.I.  $X \quad {}^{NP}[ \quad {}^{S}[ \quad \# \; NP \quad {}^{AUX}[TE \quad X$

$\underbrace{\hspace{3.2cm}}_{1} \; {}_{2} \; \underbrace{\hspace{3.5cm}}_{3}$

S.C.  Attach that as right sister of 2.

M.  EXTRA (from Subject and Object)

Extraposition is extremely general and applies not only to nominalizations but also to relative clauses. The rules below are specified only for nominalizations, since the conditions under which extraposition is permitted for relative clauses are more restricted than those for nominalizations, and not as well understood.

1.  Schematic of EXTRA (from Subject)
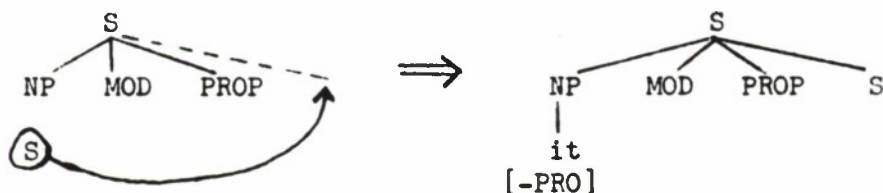
2. Rule of EXTRA (from Subject)

S.I.   X $^S[$   $^{NP}[S]$ MOD   PROP ]   X
      1 2       3    4     5      6

S.C.   (a)  Attach 3 as right sister of 5.
       (b)  _it_ replaces 3.

   Conditions:  (1)  Obligatory if 5 dominates [-TRANS,-FACT];
               (2)  4 ≠ ing + X

3. Notes on the rule: the _it_ which replaces the extraposed
   sentence has the feature [-PRO] because it is non-anaphoric;
   it is, however, still dominated by NP in order to participate
   in verb agreement.  The first condition stated is for non-factive
   intransitives like _seem_, _happen_.  The second condition blocks
   extraposition of gerundives.

4. Schematic for EXTRA (from Object)
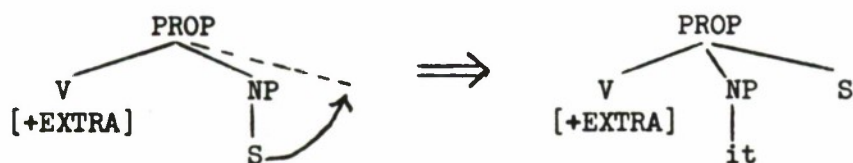


5. Rule for EXTRA (from Object)

S.I.   X   $^{PROP}[$   V          $^{NP}[S]$   X
                      [+EXTRA]
      1    2          3          4      5

S.C.   (a)  Attach 4 as right daughter of 2.
       (b)  _it_ replaces 4.

6. Notes on the rule: this is "vacuous extraposition", obligatory
   with verbs like _hate_, _like_, optional with factives like _prefer_,
   _regret_.  For discussion see III.D.3.  Note that the rule feature
   [+EXTRA] is redundant on the feature [+FACT] and does not have
   to be lexically specified, except for _hate_, _like_, and the _seem_/
   _appear_ class.


N.  THAT-DEL

     This rule optionally deletes the item _that_ which was inserted
by the rule THAT-INSERT, but only if the NP dominating the S from
which _that_ is deleted is not a subject, and only if the head V is
non-factive.  _That_ is never deletable after a Noun head.

1. Schematic for THAT-DEL
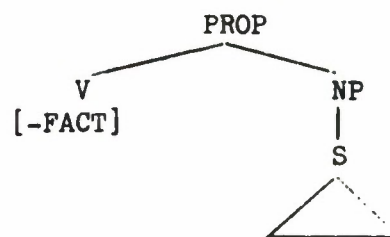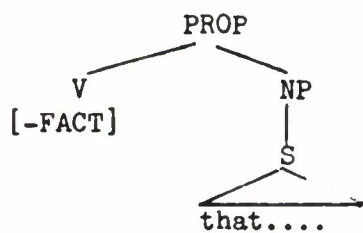


2. Rule for THAT-DEL

S.I.   X $^{PROP}[$   V        $^{NP}[^S[$ that X
                    [-FACT]
       |_____|
                  1              2   3

S.C.   Erase 2.

May 1969

# INTERROGATIVE

## Contents

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II.   INTRODUCTION

A.   Accepted Analyses

1.   The Analysis of AUX

        Chomsky (1957) proposed the following analysis of the node
AUX:

        (1)   AUX  $\rightarrow$   C (M) (have + en) (be + ing)

              [where C = Tense, M = Modal]

This analysis, as Chomsky showed, allows for a simple and uniform
account of the behavior of auxiliaries in interrogative, negative
and emphatic structures.

        Recently (e.g. in Ross (1967a) it has been suggested that
the material to the right of the arrow in (1) does not represent
the proper deep-structure analysis of AUX; but the general adequacy
of (1) as an account of the structure of AUX that is relevant to
the interrogative, negative and emphatic transformations has not
been seriously challenged.  In the present grammar, we assume an
analysis of AUX similar to Chomsky's (cf. Base Rule 3), but leave
open the question of whether this analysis represents a deep or
a **deepest**, structure.

2.    The Triggering of Interrogative (and Other) Transformations

Katz and Postal (1964) suggest that projection rules which ascribe meaning to transformations can be dispensed with in the grammatical theory if certain transformations that were considered to be optional (cf. Chomsky (1957)) are instead obligatorily 'triggered' by an optional dummy node in the P-marker (pp. 79-117).  Katz and Postal support their suggestion with both semantic and syntactic arguments.  The semantic arguments have to do with synonymity, paraphrase relations and the simplification of the projection rules.  The syntactic arguments are generally along the lines of contextual restrictions which distinguish between the products of certain transformations and their previously-assumed sources (e.g. between interrogative and declaratives), and "explanation" of previously unmotivated rules.

The triggering of T-rules which change meaning by a dummy node in the P-marker has been accepted by most generatively-oriented linguists.

B.    Analyses Not Generally Accepted (or at least not incorporated into this grammar)

1.    Q as a Separate Trigger

In the work cited already, Katz and Postal assume two triggers for the interrogative:  (1) Q, which is parallel to NEG for negation and IMP for imperatives and (2) WH, which is a "scope marker" for Q, and is a constituent of an Adverb (WH-either-or) in the deep structure underlying yes-no questions, but a constituent of a Determiner in the Deep structure underlying WH questions. It is the Q that, according to their analysis, triggers AUX inversion (and WH fronting), carries the various features for contextual restrictions, and, in the semantic interpretation, accounts for paraphrase relations.

In their justification for the node Q, Katz and Postal propose the following arguments:

a.    Semantic Argument:

Q accounts for the paraphrase relation that holds between the questions in example (2) below, and the respective sentences in example (3):

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(2) (a) Did Bill see John?
    (b) Who saw John?
    (c) Who(m) did Bill see?

(3) (a) I request that you answer: "X Bill saw John."
    (b) I request that you answer: "X saw John."
    (c) I request that you answer: "Bill saw X."

"where X (in (3.a)) is one of a special class of sentence adverbs including yes, no, of course, etc." (p. 85).

b.  Syntactic Arguments:

(i) There is a class of sentence adverbials that cannot occur with yes-no questions, though they can occur in declaratives and in tag-questions:  e.g.,

(4) (a) $\begin{Bmatrix} \text{Certainly} \\ \text{Perhaps} \\ \text{Probably} \end{Bmatrix}$ he is a doctor.

    (b) $\begin{Bmatrix} \text{*Certainly} \\ \text{*Perhaps} \\ \text{*Probably} \end{Bmatrix}$ he is a doctor?

    (c) John is $\begin{Bmatrix} \text{certainly} \\ \text{perhaps} \\ \text{probably} \end{Bmatrix}$ a doctor, isn't he?

(ii) Some negative preverbs do not occur in questions:  e.g.,

(5) (a) He hardly/scarcely eats.
    (b) *Does he hardly/scarcely eat?

For some speakers, examples like (5.b) appear to be grammatical in a suitable context.

(iii) Some preverbs can occur in questions but not in the corresponding statements:  e.g.,

(6) (a) *He ever eats.
    (b) Does he ever eat?

(That is, some-any alternation, of which sometimes-ever alternation is a special case, is tied to questions (and negatives, etc.).

(7) (a) You have some bread.
    (b) Do you have any bread?

(iv) Katz and Postal also argue, although mostly by implication, that the trigger nodes are in some sense an explanation for the inversion of AUX and the subject and for the fronting of WH, while an optional question transformation gives no reason for such transformations. One could, that is, equally well expect any other kind of operation in an·optional transformation, but the trigger nodes can be said to "attract" both AUX and WH. In general however, the inversion of AUX depends on the sentence-initial position of any [+AFFECT] morpheme (in the sense of Klima, 1964), including NEG and WH; and since the fronting of WH-elements is common to both interrogatives and relatives, it cannot be explained by the presence of Q.

There is one major problem with the analysis proposed by Katz and Postal: if Q and WH can be independently chosen, strings containing only a WH will not yield a surface structure. Katz and Postal propose that such strings are, in any case, necessary for relative clauses and indirect questions. (In our view, the WH in relative clauses not only shows different syntactic behavior (cf. Section II.B.3 below) but is also predictable, and should for the latter reason not be in the deep structure at all.) Presumably, then, some kind of "blocking" transformation will be required in cases where an S dominating WH but not Q is generated in non-embedded position.

## 2.  Q as the only Trigger

Malone (1967) proposes a trigger Q for both yes-no questions and WH questions but no separate WH trigger. The difference between yes-no and WH questions, according to Malone's analysis, depends on where the Q is attached: if it is directly dominated by S, (i.e. attached to the ART of the NP questioned) a WH question will result. (In other words, Malone's Q is equivalent to Katz and Postal's WH.) In addition, Malone has an "internal valence" and an "external valence", the former to account for the re-ordering in the surface structure of questions, the latter to account for interrogative intonation.

Leaving the problem of valences aside for the moment, it seems certainly desirable to have only a single trigger. As was indicated above, if Q and WH can be independently chosen, structures containing only the latter will not yield a surface structure. Furthermore, the semantic and syntactic characteristics that Katz and Postal attribute to their Q may equally well be attributed to their WH (Malone's Q). (In our analysis, which makes use of a single interrogative trigger, we use the symbol WH for this trigger. We interpret WH as a feature that may occur either on the conjunction or on the Determiner of an NP. In the former case, the resultant sentence is an alternative question, which, under certain circumstances, may be reduced to a yesno question. In the latter case, the resultant sentence is a WH

question.  Where yes-no questions and WH questions show different
syntactic characteristics, the differences may be associated with
the position of the WH feature in the underlying structure.)

Turning now to the Internal and External Valences proposed by
Malone, it appears that an analysis that uses both Valences and Q
proliferates triggers needlessly.  That is, Malone reduces the two
triggers used by Katz and Postal to one, but then introduces two more
of his own,  Of these two, Internal and External Valences, the Internal
Valence provides for syntactic inversion and thus corresponds closely
to the Q of Katz and Postal.  In effect, Malone's analysis is the same
as that of Katz and Postal with respect to Q and WH except for the
labels.

"External Valence" is intended to provide for intonation in
questions, specifically the differences between yes-no and WH questions,
and between echoic and non-echoic questions.  Syntactically, however,
the assumption of a valence does not explain the differences in intona-
tion, because the difference between the echoic and non-echoic questions
is due to the fact that the former are embedded in a sentence of the
form:  'did you say, "X?"'.  Echoic questions are thus direct quotations
and behave syntactically and intonationally exactly like other direct
quotations.  Malone's analysis however, cannot exhibit this parallel
in the behavior of echoic questions and other quotations.  Because
Malone's analysis fails to capture this generalization, his positing
of an External Valence is not explanatory.  If there is also a way to
explain the difference in intonation between yes-no and WH questions
without having to posit a valence (or a Q), then we could do without
valences altogether.  The basis for such an analysis does, in fact,
exist in the form of alternative yes-no questions.  Malone's analysis
with valences is insufficient for these in any case, because it would
have to show how alternative questions relate to both yes-no and echoic
questions (according to Malone, all three types have the same External
Valence.)

3.  WH in Questions and Relative Clauses as One Morpheme or Two

Katz and Postal (1964) and by implication Chomsky (1957) and
Lees (1960a), as well as others who have dealt with interrogation and
relative clauses, have analyzed the WH in questions and relative
clauses as the same morpheme.  There are several factors that argue
against such an analysis, and thus for an analysis which describes
them as two different morphemes.  The first of these can be summarized
by saying that the WH in Rel clauses is always predictable.  That is,
given the configuration unique to a Rel clause, plus the requisite
identity (NOM, NP, or N, depending on the analysis), then the grammar
will obligatorily delete the identical head item and attach the feature
[+WH] under the ART node.

The relative pronoun is thus derived in much the same way as are other pronouns, i.e., by the syntactic process of pronominalization, and thus need not occur in the deep structure at all.

The rest of these factors fall under the heading of "different syntactic behavior"; there are several of these which will be discussed below.

a.  Pied Piping

Ross (1967c) notes that there is a constraint on Rel clauses (Pied Piping) which does not apply to WH questions.  It is for this reason that we get sentence pairs like:
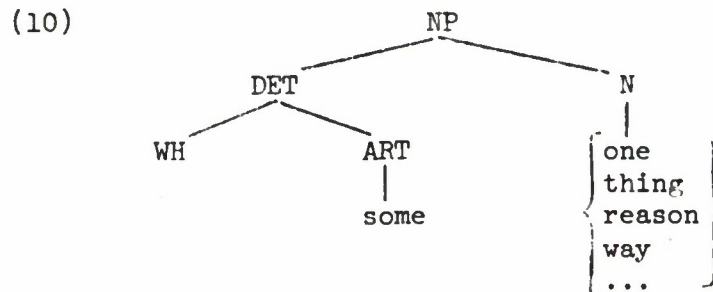
(8) (a)  ...the table of which the leg was broken.
    (b)  ...*the table of which what was broken

where (8.b) is ungrammatical because Pied Piping does not apply to interrogatives.

b.  Ross also noted (op. cit.) that questions, but not Rel clauses, may contain an "existential" there is phrase.  Thus, we get:

(9) (a)  Who is there in my bedroom?
    (b) *I didn't know the young woman who there was in my bedroom.

c.  The WH-word in questions is normally analyzed as:

(10)

```
                            NP
                   _____/  _____
                 DET                    N
               __/ \__                  |
              /       \            ┌ one    ┐
            WH         ART         │ thing  │
                        |          ┤ reason ├
                       some        │ way    │
                                   └ ...    ┘
```

The configuration yields who, what, why, how, etc., in the surface structure.  Two facts about this analysis are noteworthy.  The first is that there are a number of question words, but only two relative pronouns (who and which).  The second is that the noun in (10) must be [+PRO], and the ART [-SPEC], in order to yield the proper semantic interpretation of interrogatives.  The ART in Rel clauses, on the other hand, is only [+SPEC] in the NOM-S analysis (cf. REL eection).  If the noun in the question configuration is [-PRO], then the ART can be either plus or minus SPECIFIC to provide for the contrast shown in (11):

(11) (a)  Which boy did he see?
     (b)  What boy would wear an outfit like that?

From the foregoing discussion it seems clear that the WH in questions and in Rel clauses should indeed be two different morphemes, and that the latter should be transformationally introduced.

## 4.  Attachment Transformations

Kuroda (1965b and 1966a) claims that certain sentence adverbials, among them WH, can occur only once in each #S#.  They are then placed into the proper positions and attached to the proper node by what Kuroda calls "attachment transformations."  The merits of this analysis with respect to adverbials like just, even, etc. do not concern us here.  What does concern us, is the fact that his analysis forces him to ascribe the same deep structure to sentences like:

(12) (a)  Who saw some $\begin{Bmatrix} \text{thing} \\ \text{one} \end{Bmatrix}$ ?

     (b)  What did someone see?
     (c)  Who saw what?

Since we have tried to maintain wherever possible the Katz-Postal hypothesis that semantic differences should correspond to deep-structure differences, the deep structure introduction of WH as a feature on individual determiners seems preferable.  Furthermore, (12.c) would appear to disconfirm the claim that WH is one of these elements (if indeed there are any) which can occur only once per #S#. In any case, WH is certainly not freely attachable to nearly any constituent, as are, e.g., only and every.

## 5.  Indirect Questions

Katz and Postal (op. cit.) claim that one justification for Q as a trigger lies in the fact that it "attracts" the AUX, and that, therefore, the difference between direct and indirect questions can be expressed by not having a Q in the latter, since they do not have AUX attraction.  It seems to us that this fact can be captured fairly simply by having AUX attraction a last-cyclic rule, and hence there is no need for the node Q with indirect questions.

## 6.  Alternative Questions

The existence of alternative questions such as:

(13) (a)  Are you coming or aren't you?
     (b)  Will John eat fish or won't he?
     (c)  Should I give her a present or shouldn't I?

has been recognized for some time. In fact, Katz and Postal utilized the alternative question structure to derive indirect yes-no questions of the type:

(14) (a)  Does he know whether John is home?
     (b)  He doesn't know whether John is home.

which they then analyzed as being related to the respective sentences in (15):

(15) (a)  Does he know the answer to the question:
          "X either John is home or John isn't home"?
     (b)  He doesn't know the answer to the question:
          "X either John is home or John isn't home."

We believe that the Katz and Postal analysis of indirect questions (yes-no) is correct. In fact, we suggest that all yes-no questions are derived from alternative questions. Such an analysis has the following advantages:

a.  It unifies the derivation of direct and indirect yes-no questions.
b.  It automatically accounts for the intonation contour in yes-no questions and thus obviates the need for Malone's External Valence.
c.  It eliminates any need for the trigger Q, since the difference between yes-no and WH questions is accounted for by deriving yes-no questions from alternative questions.
d.  It makes yes-no questions part of a larger pattern of alternative questions like in (16):

(16) (a)  Did John come to the party, or did he stay home?
     (b)  Are you cooking dinner, or do we eat out?
     (c)  Is Fred going to marry Abigail, or is he going
          to stay a fool all his life?

This analysis of yes-no questions does not require the creation of any new rule apparatus, since that part of the derivation that has to do with two sentences is available in the conjunction rules, and the part of the rules particular to questions is needed for WH questions in any case. Rules deleting one of a pair of identical sentences, or portions thereof, are also needed elsewhere in the grammar.

Lastly, it would appear that the analysis proposed here not only fits the semantic analysis given in Katz and Postal, but extends that analysis, since according to the analysis proposed here, the sentence corresponding to (3.a) is:

(3') (a)  I request that you answer: "Yes, Bill saw John,
          or no, Bill didn't see John."

Turning now to the co-occurrence restrictions that Katz and Postal ascribe to the node Q, we note that they are of three kinds:

a. a class of sentence adverbials: <u>certainly</u>, <u>perhaps</u>, <u>probably</u>;
b. some negative preverbs: <u>hardly</u>,...
c. some preverbs: <u>ever</u>, and <u>some-any</u> alternations

The sentence adverbials do not really constitute a clear case, because some of them (e.g. <u>probably</u>) are acceptable in questions, while others (e.g. <u>certainly</u>) are not, as shown in the following:

(17)

(a) Will he $\left\{\begin{array}{l}\text{probably}\\ \text{*certainly}\end{array}\right\}$ come?

(b) When will he $\left\{\begin{array}{l}\text{probably}\\ \text{*certainly}\end{array}\right\}$ come?

(c) Why did he $\left\{\begin{array}{l}\text{probably}\\ \text{*certainly}\end{array}\right\}$ come?

For this reason, it seems to us that there is not a grammatical co-occurrence at work here, as Katz and Postal think, but a semantic incompatibility. In that case, we do not want to ascribe the incompatibility to any one node, but we want to have the semantic component declare the whole sentence as unacceptable.

As for the preverbs mentioned in (b) and (c) above, it appears that the restrictions that were ascribed to Q hold true for all questions, as well as for a number of other sentence types. Thus, preverbs of the type <u>ever</u>, as well as <u>some-any</u> alternants, occur whenever a sentence is marked as containing [+AFFECT]. This feature is part of negation and several other words having the negative in their semantic interpretation, e.g. <u>scarcely</u> (cf. NEG), as well as being part of interrogation. Preverbs of the type <u>hardly</u>, on the other hand, are negative in the same way as <u>scarcely</u> as can be seen by applying Klima's tag-question test:

(18)

He hardly ate, $\left\{\begin{array}{l}\text{did he}\\ \text{*didn't he}\end{array}\right\}$ ?

These negative preverbs have various other co-occurrence restrictions, e.g. they cannot occur in imperatives; for example:

(19) *Hardly eat!

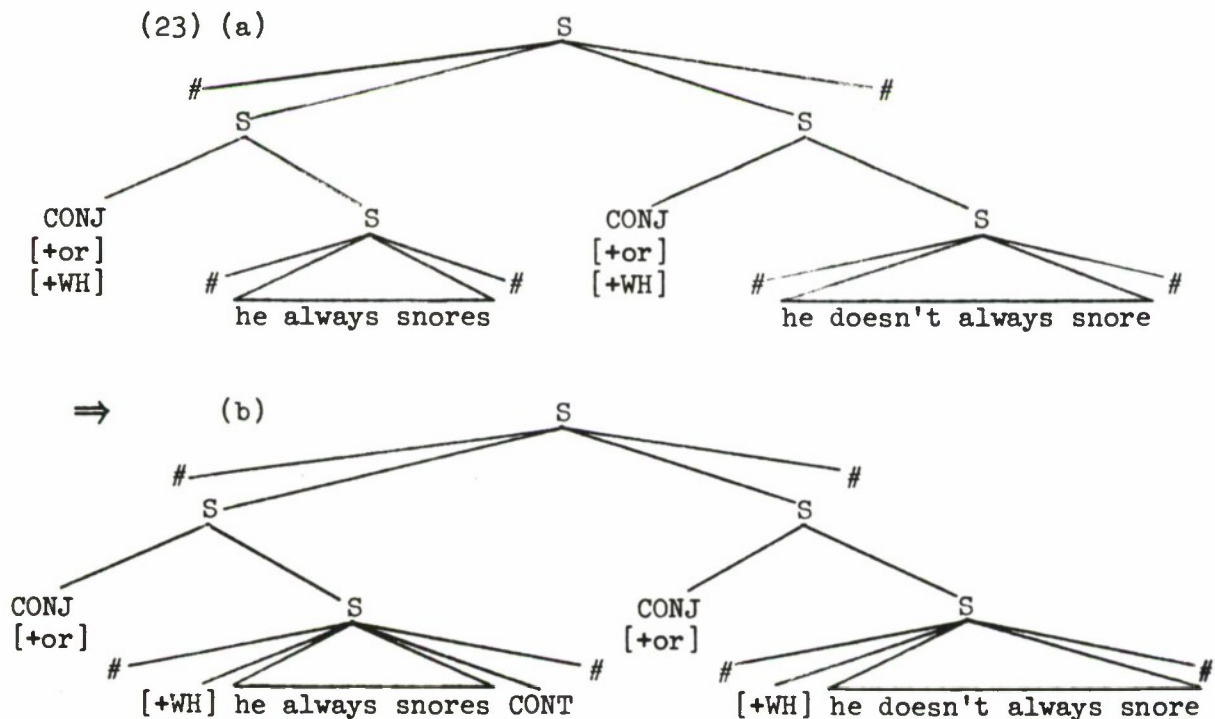nor with some verbs taking an embedded imperative that ends up in the surface structure predicate; as in,

(20) (a) *I persuaded him to hardly eat.
     (b)  I expected him to hardly eat.

In all, then, it seems to be as possible to ascribe the co-occurrence restrictions of types (b) and (c) to the node:

(21)  CONJ
      [+or]
      [+WH]

as it is to ascribe them to the node Q.


## III.  THE DERIVATION OF INTERROGATIVE STRUCTURES

### A.  Alternative Questions

### 1.  Conjunction Spreading

WH spreading will be carried out in part by the Conjunction Spreading schema (cf. CONJ section) since all conjunctions are spread from the one which is the leftmost daughter of the top S.  The Conjunction Spreading schema changes the deep structure tree of (22.a) to (22.b):

(22) (a)



⟹    (b)

2.  WH Spreading

The WH must next be brought into the lowest S's.  This rule must follow the one discussed above, but precede the Initial Conjunction Deletion rule.

SI:     #     [+WH] # X #     [+WH] # X # #
          CONJ            CONJ

        1   2   3   4 5 6   7   8   9 10 11

SC:     1.  Attach 3, 8 as right sisters of 4, 9 respectively.
        2.  Delete 3, 8 from complex symbols of 2, 7 respectively.
        3.  Insert CONT (trigger for continuing rising intonation
              pattern) as left sister of 6.

COND:   The rule is obligatory.

Notes:  This rule has the peculiar effect of introducing a feature
        ([+WH]) into a position not dominated by any lexical rule.
        Perhaps ADV should also be inserted.  Cf. next rule.

Example in Tree Format:



(23) (a)



⟹    (b)

3. AUX-Attraction

SI:    (S CONJ)* # $\begin{Bmatrix} ADV \\ NP \end{Bmatrix}$ [X $\begin{Bmatrix} [+WH] \\ [+NEG] \end{Bmatrix}$ X] X TNS ( $\begin{Bmatrix} M \\ HAVE \\ BE \end{Bmatrix}$ ) (NEG) (ADV) X #

       1        2  3                    4   5   6          7      8    9 10

SC:    1. Attach 5, 6, 7 as right sisters of 3.
       2. Delete (original) 5, 6, 7.

COND:  1. If 6 is null, 9 = $\begin{Bmatrix} [+V] \\ [-BE] \end{Bmatrix}$ + X

       2. The rule is obligatory.
       3. The rule applies last-cyclically.

Notes: (i)   There appear to be no strong arguments for ordering
             the Initial Conjunction Deletion rule prior to this
             rule.  It must precede the Reduced Alternative
             Question rule.  The trees in this section are drawn
             as though the rule had already applied to remove the
             initial conjunction.
       (ii)  The rule is intended to apply to WH questions (see
             below), alternative questions and sentences with pre-
             posed negative adverbials (cf. NEG).  In fact, the
             rule will not apply to alternative questions unless
             the WH-spreading rule were to insert a node ADV
             dominating the feature [+WH]; alternatively, con-
             stituent 3 of the S.I. could be stated to be any
             single constituent immediately dominated by S.
       (iii) The X at 4 is probably tantamount to (NP).
       (iv)  Condition (1) blocks the derivation of such forms as
             *Does he be going (or doesn't he be)?, *Where did he
             have gone?
       (v)   Condition (3) prevents [+WH] from triggering AUX-
             attraction in Rel clauses and indirect questions.
       (vi)  This rule follows a number of rules which affect the
             order of elements within MOD, e.g. Pre-verbal ADV
             placement, Pre-verbal NEG placement (cf. NEG).  The
             application of these rules accounts for the discrepancy
             between the order given here of elements 6, 7, and 8
             and their deep structure order.
       (vii) We accept Ross's (1967c) output condition (3.27) that
             S's containing internal S's dominated by NP's are
             unacceptable, as the explanation for the ungrammati-
             cality of *Did that John showed up please you? and
             therefore put no special condition on this rule to
             exclude such sentences.

(viii) The HAVE in 3 of the S.I. of the AUX-attraction rule cannot be [+V]. Thus the WH-deletion rule generates (25.d) but not (26.a) (which is grammatical in British English). Since AUX-attraction is a last-cyclic rule, NEG must already be in the position indicated in the S.I. of this rule (i.e. following HAVE). Therefore, we would derive Has he something to do or doesn't he? but not (26.a). (cf. NEG p. 53).

(ix) Apparently the usual condition on conjunction constraining the conjoining of identical sentences ($S_1 \neq S_2$) does not obtain in the case of alternative questions. Thus sentences like (25.f), which achieve their effect by seeming to offer a choice without actually doing so, are both grammatical and common.

Example in Tree Format

(24) (a)
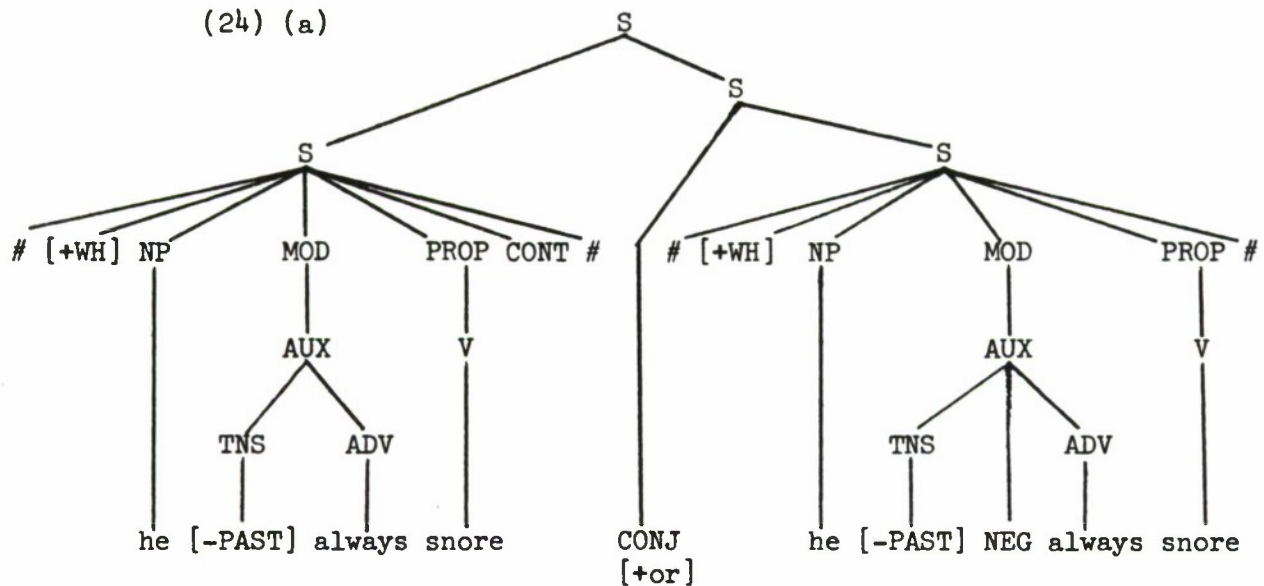


⟹ (by applying AUX-ATTRACTION to each subtree dominated by S)

(24) (b)
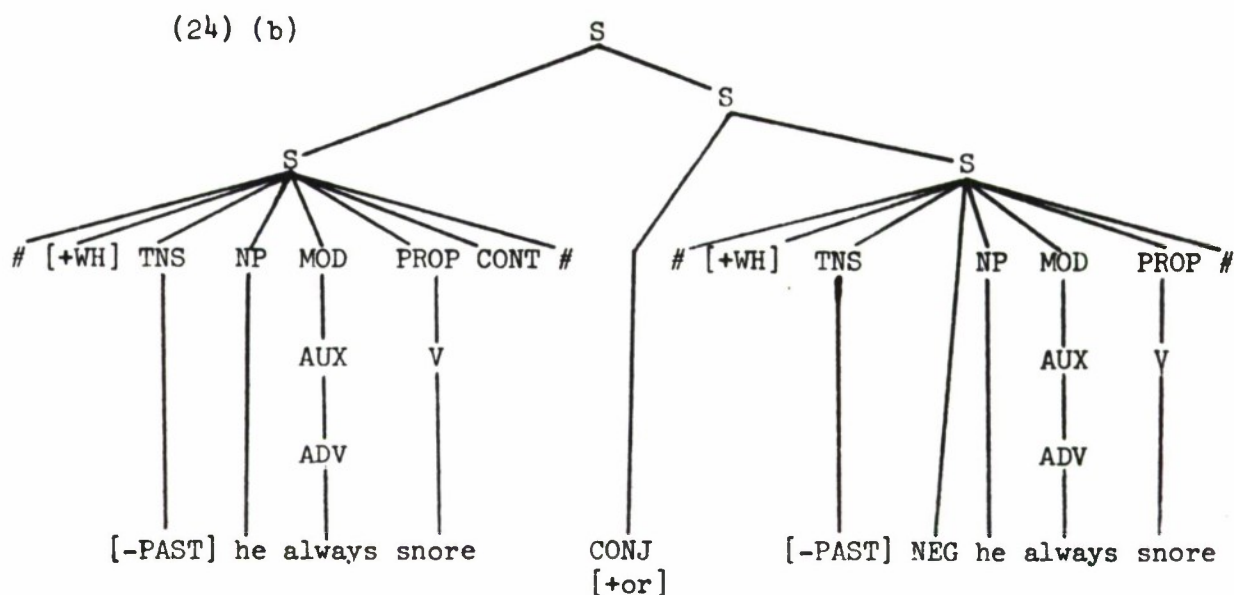


Examples:

(25) (a) Does he always snore or doesn't he always snore?
(b) Could he have left yesterday or was he being detained?
(c) Are you a man or are you a mouse?
(d) Has he left or does he have something to do?
(e) Can't you hear me or aren't you listening?
(f) Is Chomsky right or is Chomsky right?
(g) Was his doing that a surprise or had you expected it?
(h) Was it a surprise for him to do that or had you
    expected it?
(i) Was it a surprise that he did that or had you expected
    it?
(j) Is it raining or is it snowing?
(k) Is there a book on that table or isn't there one there?

Ungrammatical and disallowed:

(26) (a) *Has he something to do or hasn't he?
(b) *Does he be going or doesn't he be?

4. WH-Deletion

SI:    # [+WH] TNS X

       1   2    3

SC:    Delete 2.

COND:    The rule is obligatory.

Notes: This rule deletes the [+WH] that has been moved to sentence initial position by WH-Spreading, after the application of AUX-Attraction.

Example in Tree Format:

Tree (24.b) is changed to (27) by this rule.



(27)
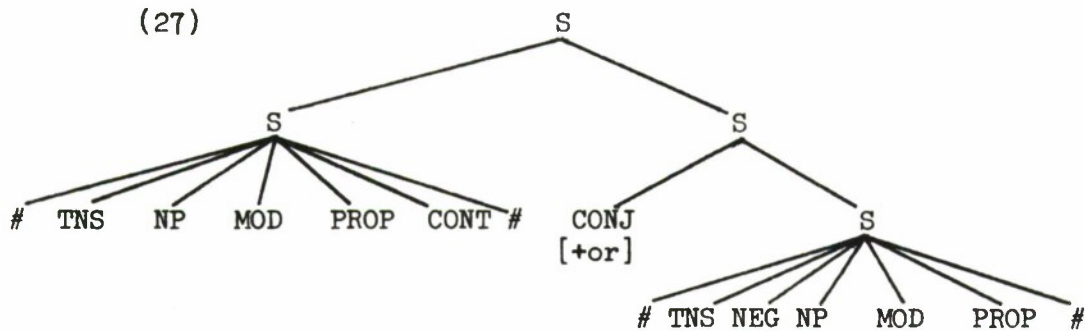
5. Reduced Alternative Question (including <u>yes-no</u> questions)

SI:

$$\#TNS(\begin{Bmatrix}M\\HAVE\\BE\end{Bmatrix})\ (NEG)\ NP\ X\ CONT\ \#\ OR\ \#TNS(\begin{Bmatrix}M\\HAVE\\BE\end{Bmatrix})\ (NEG)\ NP\ X\ \#$$

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

SC:  1.  Delete 9 or:
     2.  Delete 6, 8, 9 (where 7 = NEG) or:
     3.  Delete 5, 6, 7, 8, 9, 10

COND:  1.  1...3 = 6...10, except 2 ≠ 7
       2.  The rule is optional.

Notes:  (i)  The three SC's are all optional.  Their products are considered stylistic variants of each other and of non-reduced alternative questions.
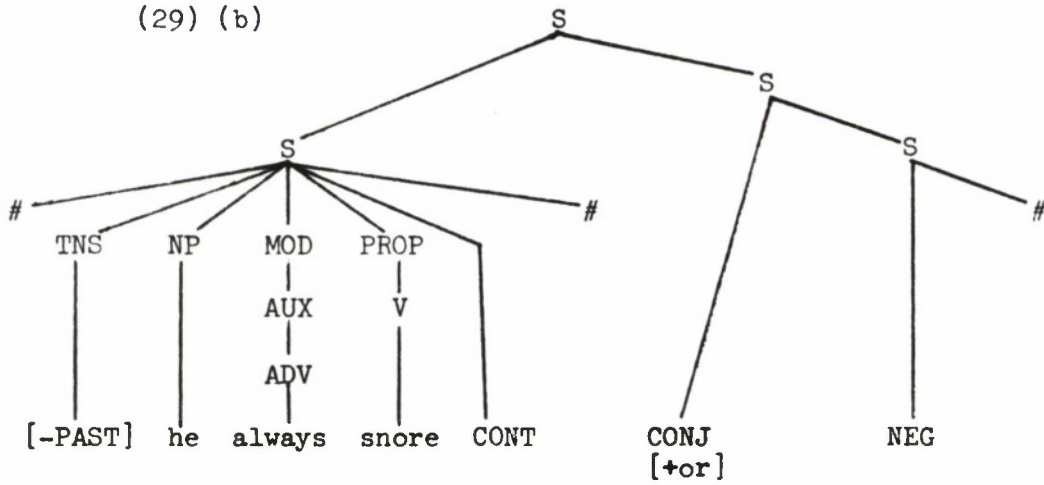        (ii)  <u>Yes-no</u> questions are generated by SC (3).

Example in Tree Format:

The REDUCED ALTERNATIVE QUESTION rule operates on the tree of (27) converting it by the three SC's into the respective trees of (29).
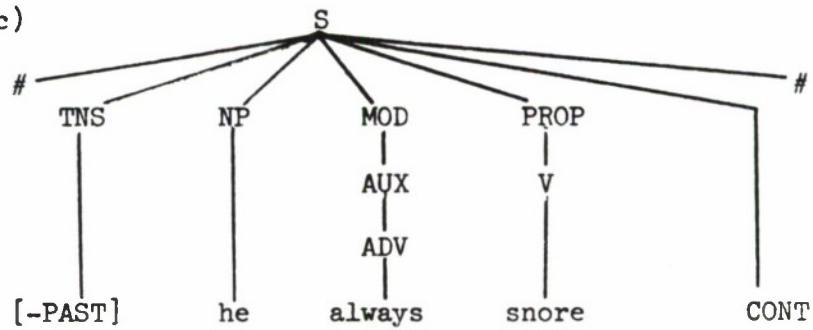
⟹ (29) (a)
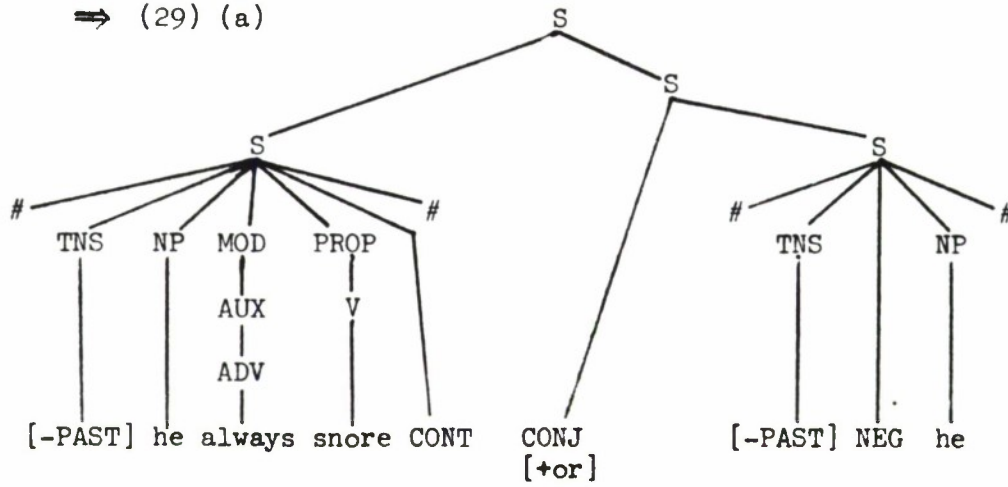


(29) (b)



(29) (c)

Examples:

    (30) (a)  Does he always snore or doesn't he?
         (b)  Does he always snore or not?
         (c)  Does he always snore?
         (d)  Doesn't he always snore or does he?
         (e)  Doesn't he always snore?
         (f)  Did you say he always snores?
         (g)  Did you (just) say, "He always snores."?
         (h)  Did you (just) say, "Does he always snore?"
         (i)  Do you have a son or a daughter or don't you?

Ungrammatical and disallowed:

    (31) *Doesn't he always snore or?

Grammatical but not generated by this rule:

    (32) (a)  He always snores?  (derived from (30.g) by T-ECHO-
              QUESTION)
         (b)  Does he always snore?  (homophonous with (30.c) but
              derived from (30.h) by T-ECHO-QUESTION)
         (c)  Doesn't he always snore?  (homophonous with (30.e)
              but derived as stylistic variant of He always snores,
              doesn't he? by T-TAG-QUESTION)
         (d)  Do you have a son or a daughter ?  (This is a simple
              alternative question, with two simplex sentences in
              its deep structure, as opposed to (30.j): Do you
              have a son or a daughter ? (which is generated by
              this rule and has the meaning 'Do you have a child?'.)
              (30.j) has four simplex sentences in its deep struc-
              ture.  The intonation contours clearly differentiate
              the graphically identical questions.)

Justification:

   (i)  The major justification for deriving yes-no questions as
stylistic variants of (a subset of) alternative questions is semantic.
That is, sentences like (30.a,b,c) are perfect paraphrases of one
another, and all are perfect paraphrases of the underlying full
alternative question, Does he always snore or doesn't he always snore?

   (ii)  A further justification is the fact that this derivation
automatically relates the rising intonation pattern of yes-no questions
to the rising pattern of the first part of alternative questions.

(iii)  This analysis agrees with Katz and Postal's analysis of yes-no questions in having WH plus OR (in Katz and Postal, WH plus either-or) in the deep structure of yes-no questions.  It is not clear, however, whether Katz and Postal consider yes-no questions to be reduced alternative questions, or whether they would say that alternative questions include an additional S in their deep structures that is absent in the deep structures of yes-no questions.

(iv)  Malone's (1967) analysis of yes-no questions, which distinguishes such questions from statements on the basis of interrogative (vs. declarative) "sentence valences", cannot account for the relations between yes-no and alternative questions, and is rejected on these grounds.

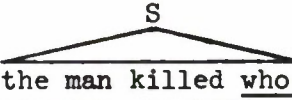(v)  The condition on SC (2) excludes strings such as (31).

Problems:

(i)  There is some doubt about whether negative sentences such as (30.e) are in fact yes-no questions.  The present treatment assumes that they can be, i.e. that (30.d,e) can be derived as alternative stylistic variants of:  Doesn't he always snore or does he always snore? (This latter sentence, however, is itself rather peculiar unless the auxiliaries are stressed:  You said he doesn't always snore, but now you seem doubtful.  Well, doesn't he always snore or does he always snore?)  In any case, it seems clear that the usual interpretation of Doesn't he always snore?  is a paraphrase of He always snores, doesn't he?--see (30.c)
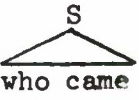
(ii)  It is perhaps a problem for this derivation of yes-no questions that the answers to such questions are different from the answers to alternative questions:

(33)  Does he always snore, or doesn't he always snore? $\begin{Bmatrix} \text{He does.} \\ \text{He doesn't.} \end{Bmatrix}$

(34)  Does he always snore? $\begin{Bmatrix} \text{Yes (, he does).} \\ \text{No (, he doesn't).} \end{Bmatrix}$

(iii)  SC (1) retains only the pre-subject part of AUX, in the second of the conjoined questions.  Thus from Should he have been doing that or shouldn't he have been doing that?  SC (1) derives:  Should he have been doing that or shouldn't he?  But the following are also grammatical:  Should he have been doing that or shouldn't he have?  Should he have been doing that or shouldn't he have been?  The same patterning of AUX retention is found in other kinds of conjoined structures--He should have been doing that and she should (have (been)), too.--so perhaps the general conjunction-reduction rules are all that is

necessary to account for the sentences generated by SC (1).  Similarly, SC (2) seems only to be a special case of a more general phenomenon: cf. He loves Jane and not Mary, Either he loves Jane or not.

B.  WH Questions and Other Question Types

1.  WH Question Words

Since the WH's which yield question words are introduced as features on the determiner of the indefinite NP, there is no need for a WH-ATTACHMENT rule with interrogative structures.  The various question words (and relative pronouns) are derived from the feature complexes under the determiner node.  The actual "spelling" of the feature complexes takes place in the second lexical lookup.  The discussion and justification of this procedure, along with the rules, are found in the DETERMINER section.

2.  WH Fronting

SI:  # X (PREP) $_{NP}$[D [+WH] X]  X

1 2       3          4

SC:  1.  Attach 3 as right sister of 1.
     2.  Erase (original) 3.

COND:  1.  2 ≠ X [+WH] X
       2.  The rule is obligatory.

Notes:  (i)  The fronting of [+WH] will trigger AUX-ATTRACTION.
        (ii)  In some cases the constituent with WH may be fronted from within a subordinate clause:  When has he decided to leave?  Where did she tell him to go? What did it surprise him that she did?

        Fronting must be prevented, however, when the constituent with WH occurs in a relative clause or an indirect question.  Rel clauses are one of the configurations where the movement across a variable is blocked by Ross's COMPLEX NP CONSTRAINT.  The fact that interrogation is also impossible out of an indirect question suggests that the deep structure of indirect questions should have a lexical head. For example:

(35) (a)   The man ⟨S⟩ came →
           the man killed <u>who</u>

    (b)   *Who did the man who kill came?

(36) (a)   You know ⟨S⟩ →
          who came

    (b)   *Who do you know came?
    (c)   *Who did you know come?

(iii)   Condition (1) is needed to prevent the stacking of WH's.

    (37) (a)   *Why where when did you see him?
        (b)   Why, where and when did you see him?

(iv)   A sentence with WH can be conjoined only with another sentence containing WH:

    (38) (a)   He died where and when?
        (b)   Where and when did he die?

    (39) (a)   *He died here and when?
        (b)   *Here and when did he die?

## 3.   Tag Questions

There are certain requisites that any solution for tag questions should meet.  First, they should not be generated as optional variants of <u>yes-no</u> questions, since they are semantically distinct from them.  That is to say, they appear to be either negative or positive statements with an appended question element.  They do not have the neutral disjunctive either/or characteristic of the alternative question.  Tag questions are underlying suppositions, hopes, fears,etc., for which the speaker is seeking confirmation.  An alternative question seeks only information.

In addition, there is a co-occurrence restriction that holds for <u>yes-no</u> questions but not for Tag questions.  As pointed out by Katz and Postal (1964), some sentence adverbials can not occur in <u>yes-no</u> questions, but can occur in Tag questions (and in declaratives-- cf. II.B.2 above); e.g.,

    (48) (a)   Certainly John is a doctor.
        (b)   Certainly John is a doctor, isn't he?
        (c)   *Is John certainly a doctor?

This means, that if we were to derive Tag questions from yes-no questions, we would have to constrain these sentence adverbials so as to trigger the "optional" Tag transformations. Such a constraint seems a very unlikely one.

Second, we would want the same rule for AUX ATTRACTION that applies to alternative questions to apply to the AUX in the Tag.

Third, the obligatory occurrence of the oppositive value of negation in the Tag to that in the main statement should be shown to be a function of the value of negation in the supposition underlying the tag question and not inherent to the tag in the deep structure. For example, in (49):

(49)  John has left, hasn't he?

the NEG in the tag results only because there is no NEG in the main statement. While in (50):

(50)  John hasn't left, has he?

the non-occurrence of NEG in the tag results from the NEG present in the main S.

Previous analyses of tag questions have failed to meet one or more of these requisites. Klima's analysis (1964c) fails with respect to the first requirement given above. The second and third are recognized. Thus for Klima (51) and (52) are two sets of optional variants:

(51) (a)  Has John left?
     (b)  John has left, hasn't he?

(52) (a)  Hasn't John left?
     (b)  John hasn't left, has he?

Rosenbaum (1966) fails with respect to the first and third of the above requisites. For Rosenbaum all tag questions are optional variants of negative yes-no questions. Tag questions with a negative in the tag are derived by optionally moving the negative of a main sentence negative into the tag. This results in the claim that (53.a,b,c) are all optional variants:

(53) (a)  Hasn't John left?
     (b)  John hasn't left, has he?
     (c)  John has left, hasn't he?

There are two possible analyses that we have considered. They both present certain difficulties. For this reason we shall not present specific rules in this section, but rather we shall briefly outline the alternative analyses.

One possibility is to suppose that tag questions are the result of a statement plus a following alternative question which has been further reduced. This alternative question might originate in a sentence adverbial. (54.a) would be the deep structure for John has left, hasn't he? The alternative question in (54.a) would then undergo CONJ SPREADING, WH SPREADING, CONJ DELETION, AUX FRONTING, WH DELETION, and ALTERNATIVE Q RED, to yield (54.b):

(54) (a)

ADV

S

CONJ
[+or]
[+WH]

S
John hasn't left

S
John has left

S
John has left

⟹

(54) (b)

S

ADV

S
hasn't John left

S
John has left

⟹

(54.b) then undergoes the tag rule which moves adverb to post-position and further reduces the question in the tag which results in (54.c):

(54) (c)

S

S
John has left

ADV

S
hasn't he
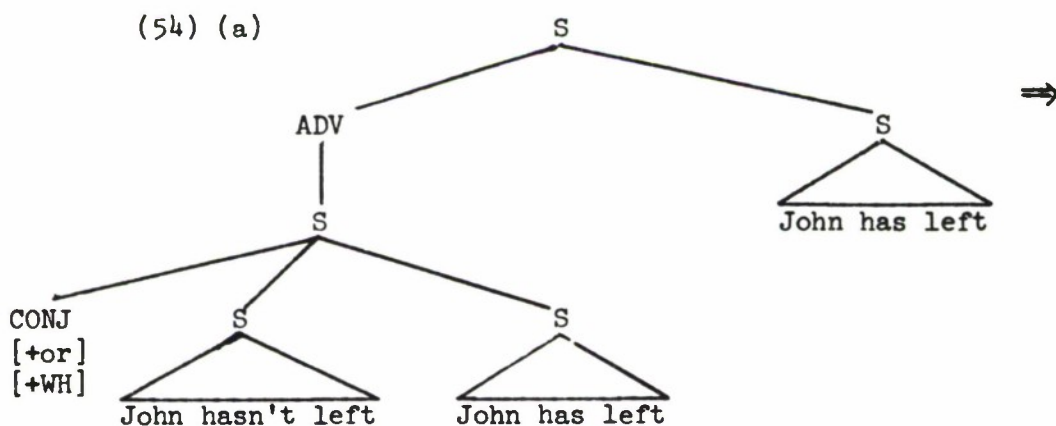
The principle difficulty with this analysis is the stating of the identities in the tag reduction rule.  We want to state that the S of the tag (i.e. ADV) is identical to the main sentence S with the exception of NEG.  (This must be stated as a condition.)  However, since the tag S has undergone AUX FRONTING it is no longer formally identical.  As a result we must tortuously list the elements in both S's and their identities.  Thus, although it is possible to write such a rule, it is rather complicated to state.  A main virtue of this approach is that it does not add any new symbols to the base structure (except ADV S) and employs the mechanism needed for alternative questions plus one additional rule.

A second possibility which we have considered is that tag questions result from a copying rule which copies the subject NP and the relevant parts of AUX after a sentence and makes the tag opposite to the main sentence in negation.  This, however, demands a separate trigger in the base.  It has been suggested that WH be generated as a sentence ADV for this purpose.  The copying rule would then operate on (55.a) and convert it to (55.b):

(55) (a)
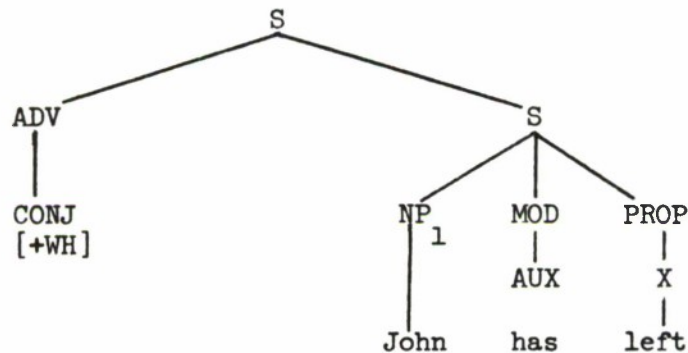


(55) (b)
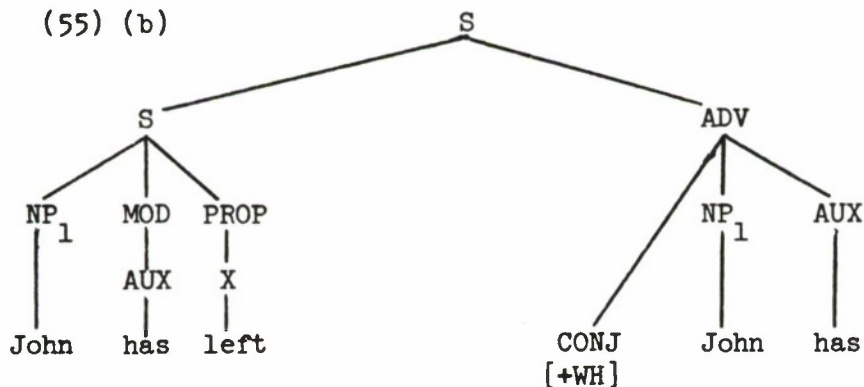
The WH, which has been post-posed, then serves as a trigger for the AUX ATTRACTION rule (as it does in alternative questions) to apply to the tag. There are technical difficulties with this solution, too. First of all, WH coming from ADV may have to be restricted to non-embedded sentences since tag questions, unlike alternative and WH questions, do not appear to tolerate embedding, e.g. *<u>I wonder whether John has left, hasn't he?</u> (This generalization is not entirely correct since for many people the following sentences are grammatical):

(56) (a)  I think
     (b)  I'm sure
     (c)  I imagine        } (that) John has left, hasn't he?
     (d)  I suppose
          ...etc.
     (e)  ?I know (that) John has left, hasn't he?

Note the presence of <u>that</u> which seems to indicate that tag questions are really quite different from alternative and WH questions; e.g.,

(57) (a)  *I know that who left
     (b)  *I know that whether he left or not

Yet there is a peculiar restriction on embedded tag questions which we do not fully understand: they must have 1st person singular pronouns as matrix subject:

(58) (a)  *John thinks that Mary has left, hasn't she?
     (b)  *They are sure that we have left, haven't we?

4.  Negative Questions from Tag

There is a type of negative <u>yes-no</u> question which resembles tag questions in that it seems to involve an underlying supposition. The supposition is positive, however. This is illustrated in (59):

(59) (a)  Didn't John write any poetry last year?
     (b)  Didn't John write some poetry last year?

(59.a) is an ordinary alternative question, but (59.b) seems to mean that the speaker supposes that John did write some poetry. We propose that (59.b) has the same base structure as (60):

(60)  John wrote some poetry last year, didn't he?

If we were to choose one of the above alternatives (59.b) could be derived as follows: a tree such as (54.a) for the underlying structure of (59.b) would be reduced by deletion of the main statement S and the right sister S of the tag, to:

649

(61)

```
              S
              |
             ADV
              |
              S
      _____|_____
     ⎧ Didn't John write some poetry last year? ⎫
     ⎨ Hasn't John left?                        ⎬
      ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾
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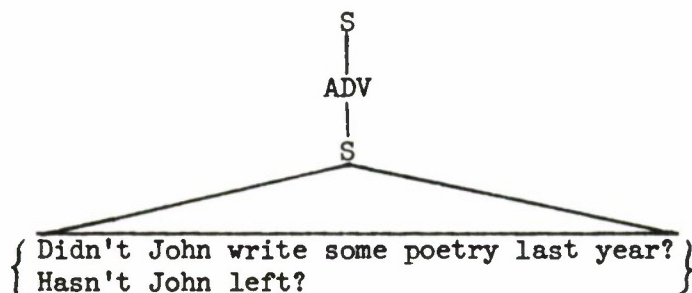
5.  Questioned Quote   (Including Echo Question)

SI:     # [+PAST] <u>you say</u>  X CONT #
        ‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾  ‾‾‾‾‾‾‾‾

                 1              2

SC:     Delete 1.

COND:   This is an optional (stylistic) rule.

Note:   The SI characterizes a subset of the products of REDUCED
        ALTERNATIVE QUESTION rule:  viz., <u>yes-no</u> questions with the
        subject <u>you</u> and the verb <u>say</u>.  <u>Say</u>, which means "(just) say
        in this linguistic context" is different from the ordinary verb
        <u>say</u> in that it takes only quotes sentences or pro-forms
        as objects.  Its surface form, however, is homophonous with
        that of the ordinary transitive verb.

<u>Example in tree format:</u>

(62) (a)

```
                              S
              _____/|_____
         # __/      /    /      \                \__ #         ⟹
            TNS    NP    PROP                       
                          /\                         
                         V  NP                       
                            |                        
                            S                        
                           /\                         
        [+PAST]  you  SAY  he's going        CONT
```

(62) (b)

```
                        S
                       /|\
                      / |  \
                     /  |   _____  #
                   PROP |
                    |
                    NP
                    |
                    S
                   / \
                  /   \
             he's going          CONT
```
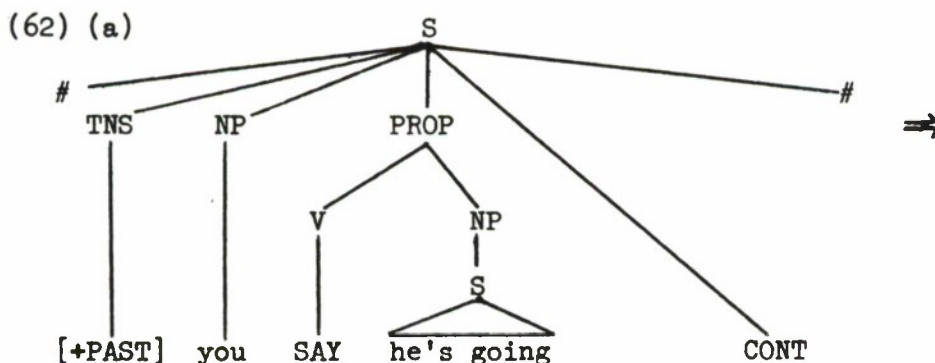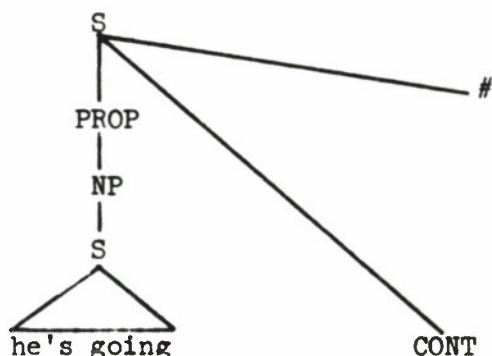
## Examples:

(63) (a)  He's going?  (cf. Did you (just) say:  "He's going?")
     (b)  Is he going?  (cf. Did you (just) say:  "Is he going?")
     (c)  Where did he go?  (cf. Did you (just) say:  "Where
                                             did he go?")

## Justification and Alternatives:

(i)  To date, Malone (1967) is by far the fullest treatment of
echo questions and other echoic sentences (see WH QUESTIONED QUOTE,
DECLARED QUOTE, below).  The present analysis differs from Malone's
in that it relates all echoic sentences to deep structures that in-
clude the verb SAY (see Notes above).  This analysis seems justified
by the interchangeability of echoic sentences and sentences with SAY.

(ii)  Examples like (63.b) are homophonous with yes-no questions.

(iii)  Examples like (63.c) are distinguished intonationally from
two other sentence types with initial WH words:  WH questions and WH-
questioned quotes.  The questioned quotes have a /233↑/ intonation
pattern, the WH questions a /231↓/ intonation pattern, and the WH-
questioned quotes a /333↑/ pattern:

(64)    2           33↑
(64)    Where did he go?  (Echo question)


        2           31↓
(65)    Where did he go?  (WH question)


        3           33↑
(66)    Where did he go?  (WH-questioned quote)

6. WH-Questioned Quote

a. Intonation Introduction

SI:     # you [+PAST] SAY # X  (PREP) [+WH] X   #

                     1                 2      3

SC:     1.  Attach RAISING INTONATION ("↑") as left sister of 2.
        2.  Attach CONT as left sister of 3.

COND:   The rule is obligatory.

Notes:  (i)   See QUESTIONED QUOTE, Notes for SAY.
        (ii)  The "↑" introduced by the SC is an intonation marker.
              It represents a high pitch (Trager-Smith level 3)
              on all material that follows it.
        (iii) CONT is also an intonational marker.  It represents
              a final pitch rise.

**Example in tree format:**



(67) (a)

652

⟹     (67) (b)

```
                                          S
        #                                                           #
        NP    MOD              PROP                    CONT
               |          /          \
              AUX        V            NP
                                      |
                                      S
                          #                              #
                      NP  MOD    PROP                ADV
                           |      /    \
                          AUX    V      NP
                                        /  \
                                       V    D    NOM
                                            |
                                           ART
```

you  [+PAST]  SAY   he[+PAST] see   ↑   [+WH  ]  [+N  ]  yesterday
                                        [+INDEF]  [+PRO ]
                                                  [+HUM ]

## Examples

    (68) (a)   You said he saw ↑ who(m) yesterday?
       (b)   You said ↑ who saw him yesterday?
       (c)   You said he saw him ↑ when?
       (d) ?You said ↑ what?

## Ungrammatical and disallowed

    (69) *Did you say he saw ↑ who(m) yesterday?  (Possibly
       grammatical, but only as a reply to:  Did I say he saw
       (inaudible) yesterday?, in which case it is derived
       from:  You said, did I say he saw ↑ whom yesterday?)

## Related examples

    (70) (a)   ↑Who(m) did you say he saw yesterday?
       (b)   ↑Who did you say saw him yesterday?
       (c)   ↑When did you say he saw him?
       (d)   ↑What did you say?

Grammatical but not Related to this Rule:

    (71) (a)  Did you say he saw him yesterday?

            2                              3     1↓
       (b)  Who(m) did you say he saw yesterday?

            2          3 1↓
       (c)  What did you say?

## Justification

    (i)  The underlying structure of WH-questioned quotes is differentiated from that of other questioned quotes in two ways:  (a) the WH-questioned quotes are derived from declaratives, rather than interrogatives, with you SAY in the matrix S; (b) the WH-questioned quotes obligatorily include WH in the object of SAY.  The reason for (a) is that sentences like (68) and (71.a) are grammatical, while sentences like (69) are not.

    (ii)  The ordinary WH FRONTING and AUX ATTRACTION transformations operate optionally on (68.a,b,c) to yield (70.a,b,c) respectively. In the case of (68.d) the WH QUESTION transformations perhaps operate obligatorily to yield (70.d).

    (iii)  The need to distinguish SAY from the ordinary verb say becomes clear through a comparison of (70.a) with (71.b) and (70.d) with (71.c).  (71.b,c) are simple WH questions, while (70.a,d) are WH questions based on WH-questioned quotes.

b.  You-said Deletion

    SI:    # you [+PAST] SAY  X ↑ X [+WH] X

                   1                        2

    SC:    Delete 1

    COND:  The rule is optional.

**Example in Tree Format:**

(72) (a) (The input tree equals the output tree for the above Intonation Introduction rule, (67.b).)

(b)



**Examples**

(73) (a)   He saw ↑ who(m) yesterday?
   (b)   ↑ Who saw him yesterday?
   (c)   He saw him ↑ when?
   (d)   ↑ What?

**Related Examples**

(74) (a)   ↑ Who(m) did he see yesterday?
   (b)   ↑ When did he see him?

**Grammatical but not Related to this Rule**

(75) (a)   2              3    1↓
     Who(m) did he see yesterday?

     3  1↓
 (b)   What?

## Justification

(i)  Examples like (73) are derived by optional deletion of 'You said' from the examples (68) respectively given for Intonation-Introduction rule above.  This derivation is justified on the grounds of semantics as well as on the basis of intonation.

(ii)  Examples like (74) reflect the optional operation of the ordinary WH-QUESTION transformations upon (73.a,c) respectively.

(iii)  (74) may be contrasted with (75).  The latter are simple WH questions, while the former are WH questions based upon WH-questioned quotes that have undergone 'you-said' deletion.

7.  Declared Quote

SI:   #  I [+PAST] SAY #  X  (CONT)  #

      1         2        3    4     5

SC:   Delete 2 and 4

COND:  1.  3 ≠ X + CONT
       2.  The rule is optional.

## Example in Tree Format

(76) (a)



656

(76) (b)

```
                              S
                              |‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾# 
#·                            VP
                              |
                              NP
                              |
                              S
              _____/‾/|‾‾‾\‾‾‾‾‾‾\
             TNS      NP   MOD     PROP
                      |     |       |
                      be   AUX      V
             |        |     |       |
          [-PAST]     he  PROG      go
                            |
                           ing
```

## Examples

     2  3 1↓
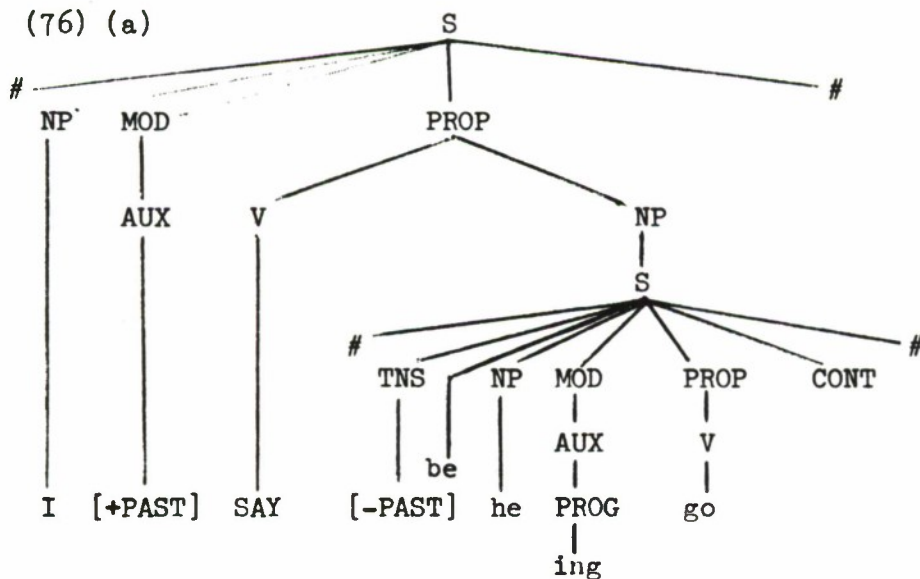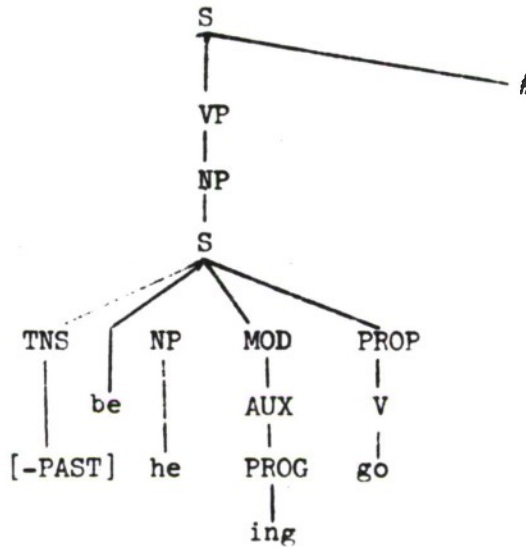
(77) (a) Is he going?

   (b) He's going. (As reduction of <u>I said, "He's going."</u>)
   (c) Who's going? (As reduction of <u>I said, "Who's going?"</u>)

## Grammatical but not Generated by this Rule

(78) (a) 2  3 3↑
     Is he going?

   (b) He's going. (As non-quoted statement.)
   (c) Who's going? (As non-quoted WH question.)

## Justification

 (i) Examples like (77) are derived by optional deletion of "I said" from the sentences "I said (77)." Semantic and intonational arguments for this derivation may be adduced.

 (ii) When the declared quote is a <u>yes-no</u> question, it differs intonationally from a non-quoted <u>yes-no</u> question--compare (77.a) with (78.a). In other cases, declared quotes are homophonous with their non-quoted counterparts--compare (77.b) with (78.b) and (77.c) with (78.c).

 (iii) Condition (1) on the rule guarantees that if CONT is indeed present, it must be chosen as element 4 of the S.I. and hence must be deleted.

December 1968

# IMPERATIVE

## Contents

IMPERATIVE

I.  BIBLIOGRAPHY

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II.  DISCUSSION AND ANALYSIS

A.  The Range of Phenomena Treated

    The UESP grammar provides rules for only a small proportion
of the constructions which have at various times been regarded as
imperatives or as closely related to them.  In some cases this is
because too little is known about the construction in question.
However, in the case of forms like:

        (1)  (a)  John, come here.
             (b)  Will you come here!
             (c)  You will come here!

all of which have been regarded by one or another transformational
grammarians as directly related to imperatives, there are good
arguments against postulating a direct transformational relationship
between any of these forms and true imperatives like:

        (1)  (d)  Come here.

    Immediately below are examples of the construction-types which
 our  rules account for, including embedded imperatives (i.e.
"subjunctives").  These are followed by examples of types not in-
cluded in the rules.  The question of possible constraints on the
deep structure subject of non-embedded sentences is then discussed.

In the course of this discussion we separate <u>vocatives</u> from other
sentences which appear to be imperative.  What we have called
<u>peremptory declaratives</u> are claimed to be declarative sentences
which in appropriate context may be interpreted as embodying a wish
or command, while <u>requests</u> are a kind of question open to a similar
interpretation.  Vocatives, requests and peremptory declaratives
have been regarded as typical imperative forms in some earlier works.
The underlying auxiliary of imperatives is examined next, adopting a
position close to that of Lees (1964): the appropriate base rule
introduces an element, which we represent as SJC, disjunctive with
both modals and tense.  Thus, we do not generate a modal such as <u>will</u>
in the deep structure of imperatives, but a separate form which be-
haves in certain respects like modals (in AUX-INVERSION) and in
certain respects like affixes ( in AFFIX-SHIFT and DO-SUPPORT ).  In
connection with this argument, it is necessary to consider briefly
the significance of tagged imperatives, for which we do not provide
rules--in fact the grammar does not generate tags, for reasons set
out here and in INTERROG.

This treatment of imperatives may be open to the objection
that it fails to relate them to a number of constructions which
appear to be semantically or syntactically similar.  For example,
the grammar does not provide directly for the fact that certain
readings of (1.a-c) are close paraphrases of (1.d) and that all
these, together with (2.a-c) may perhaps incorporate a common semantic
element, in contrast with declaratives and questions.

    (2)  (a)  Go home now and I'll never see you again.
          (b)  Let's go home.
          (c)  May he go safely.

We claim that imperatives (like (1.d)) are syntactically
distinct from all the other examples in (1) and (2); it may be
possible in the future to give a more unified account of some of
the exemplified constructions, but we consider that any such treat-
ment must recognize the syntactically distinct class of imperatives.

1.  Included in the UESP Rules

(a)  Plain Imperatives

These rules account directly for plain imperatives and sub-
junctives (which are here regarded as equivalent to embedded
imperatives).

    (3)  (a)  Go there.
          (b)  You go there.
          (c)  Somebody go there.
          (d)  Don't go there.
          (e)  Don't you go there.
          (f)  Don't anybody go there.

(b) Complements containing subjunctives

(4) (a) They requested
    (b) They made the request } that John be publicly
                                         chastized.

    (c) He moved
    (d) He seconded the motion } that the governor be
                                         recalled.

    (e) It is desirable
    (f) They talked about the necessity } that a bridge
                                              be built.

The term subjunctive word, is used here to refer to those head words that can take THAT-complements which contain SJC, the element in AUX that distinguishes imperatives. Since there is no distinct form in FOR-TO and POSS-ING complements for such embedded imperatives (subjunctives) it is difficult to provide purely formal criteria which would indicate when these complements are subjunctive. For example, the insertability of please is not a criterion. Compare (4.e,f) with (5).

(5) (a) It is desirable to build a bridge.
    (b) They talked about the necessity of building a
            bridge.
    (c) *It is desirable to build a bridge, please.
    (d) *They talked about the necessity of please
            building a bridge.

Most subjunctive words are unmarked for the feature [IMPER] in the lexicon since they may take either subjunctive or indicative sentences as their complements. Words like know, which cannot take a subjunctive complement are marked [-IMPER] in the Lexicon. (See NOM and LEX.) Words like move, and perhaps propose, which can only take a subjunctive in a complement clause are marked [+IMPER]. (See LEX .)

2. Not Dealt with in the UESP Rules.

The following four types of constructions have not yet been carefully investigated from a generative point of view. Wishes have been totally excluded from the present treatment of imperatives. Conditional imperatives, permission imperatives, and wish imperatives are treated only in so far as their properties coincide with those of plain imperatives.

(a)   Conditional imperatives.

> (6)   (a)   Come here, and I'll give you a dollar.
>        (b)   If you come here, I'll give you a dollar.
>
> (7)   Scratch a Russian and you will find a Tartar.

(b)   Permission imperatives.

> (8)   (a)   Come home at 3:00 every morning (if you must).
>        (b)   Buy whatever you like.
>        (c)   All right, be miserable (I don't care).

(c)   Wish-imperatives.

> (9)   (a)   Be happy.
>        (b)   Get well soon.
>        (c)   Sleep well.

(6)-(9) are all much like   ordinary imperatives but differ from them
semantically, and, to a greater or lesser extent, syntactically.
For example, they do not take tags comfortably.  Please can occur
with none of the examples in (8).

(d)   Wishes

> (10)  (a)   May you be happy.
>        (b)   May you soon get well again.

In addition, modals of volition with their accompanying verb-
phrases have not been dealt with in detail.  Such modals have been
treated by Boyd and Thorne as realizations of a performative pro-
verb IMP.  A grammar that treats auxiliaries as main verbs might
subsume these modals under the subjunctive words mentioned above
(II.A.l.b).  This grammar does not treat auxiliaries as main verbs,
and the fact that a non-finite verb form follows both the modals
and the subjunctive words results from independent factors in the
grammar:  modals have no affix with them in the deep structure so
there is nothing to move onto the verbs which follow, while subjunc-
tive words on the other hand select, to follow them, an embedded
sentence containing SJC in the AUX.  Since SJC is disjunctive with
TNS, there is once again no effect on the form of the main verb.
Some examples of modals of volition are:

(11)
$$
\text{You} \begin{Bmatrix} \text{shall} \\ \text{should} \\ \text{must} \\ \text{may} \\ \text{might} \\ \text{could} \\ \text{ought to} \end{Bmatrix} \text{go.}
$$

So far in this section we have been dealing with forms which we exclude not on the basis of positive evidence but simply because they have not yet been adequately dealt with from a transformational perspective, or because we have been unable to incorporate them into our treatment of the imperative. There is one more such construction, the <u>let imperative</u>, which has many points in common with the true imperatives but which we do not attempt to deal with in detail.

(e)  Let imperatives.
(i.e. <u>let</u> used with first or third person subject to supply n an indirect imperative)

    (12)  (a)  Let's start at once, shall we.
         (b)  ?Don't let's start yet.  (Let's not start yet.)
         (c)  Let us both have a try at it.
         (d)  Let there be no mistake about it.
         (e)  Let them leave as soon as they hear me call.

We do not have an analysis of these forms. They appear to be closely related to ordinary imperatives but there are differences. For example, quite a number of <u>let</u> imperatives do not admit a tag with <u>will you</u>:

    (13)  (a)  *Let them do their worst, will you.  (defiance)
         (b)  *Let them all come, will you.        (defiance)
         (c)  *Let there be no mistake about it, will you.
         (d)  *Let AB equal CD, will you.

Moreover, <u>let</u> imperatives with a first person plural (inclusive) subject differ formally from plain imperatives in which <u>let</u> is followed by a complement with a first person plural (exclusive) subject: the <u>let</u> imperatives admit reduction of <u>let</u> <u>us</u> to <u>let's</u> and some differ in the form of the tag:

    (14)  (a)  Let us pass, will you `}
         (b)  *Let's pass, will you `}(=allow us)
         (c)  Let us go in, shall we.`}
         (d)  Let's go in, shall we.`}(=I suggest that we...)

We turn now to three forms which have been regarded by various grammarians as imperatives. We shall devote the next three sections to demonstrating that although they possess features in common with imperatives, they must all be clearly separated from them. We do not deal with these constructions in the imperative rules for the reasons discussed below.

(f) Vocatives

(15) (a) John, look at yourself.
(b) Take off your coat, somebody.
(c) Boys, come here, please.

(g) Peremptory declaratives

(16) (a) You will leave immediately.
(b) Shoes will not be worn in the gym.
(c) You certainly won't do that.

(h) Requests

(17)
$$\left\{\begin{array}{l} \text{Can} \\ \text{Could} \\ \text{Can't} \\ \text{Couldn't} \\ \text{Will} \\ \text{Would} \\ \text{Won't} \\ \text{?Wouldn't} \end{array}\right\} \text{you leave immediately, please.}$$

Finally, tagged imperatives which are described in detail in section (F) are not dealt with in our rules since we do not have a general Tag rule in the grammar.

(i) Tagged imperatives

(18)
Leave immediately, $\left\{\begin{array}{l} \text{will you} \\ \text{can you} \\ \text{would you} \\ \text{could you} \\ \text{won't you} \\ \text{can't you} \end{array}\right\}$ (please).

B. The Underlying Subject of Imperatives.

1. Constraints on Imperative Subjects in respect to Person

Chomsky (1955), Klima (1964c), Kiparsky (1963), Katz and Postal (1964b), Lees (1964b) and Hasegawa (1965) all agree that imperatives

have you as underlying subject.  This subject may (and in some cases, must) be deleted.  They support this claim by the following arguments:

(a)  The reflexive in imperatives is yourself/yourselves:

> (19)  Look at yourself.

but not:

> (20)  *Look at myself.

(b)  Tagged imperatives have you:

> (21)  Go home, will you.

but not (as an imperative):

> (22)  *Go home, will he.

Thorne, however, notes that there are certain kinds of imperatives in which it is less obvious that an underlying you is the subject:

> (23)  (a)  Nobody move.
>      (b)  Everybody get out as quick as he/you can.
>      (c)  Somebody pay the bill.
>      (d)  John, come here.
>      (e)  Sit down, boys.

He therefore admits nouns as the subject of imperatives, but requires that the N-node contain the feature [+VOCATIVE].  This feature is always realized by you either as a determiner on the noun, as in you boys come here, or by itself.  The feature [+VOCATIVE] (on you) may be deleted in certain contexts, as in (23.d,e).  Thorne's disagreement with the conclusions the other investigators drew from sentences (19-22) is thus less radical than it seems — apparently not radical enough.

Thorne fails to take into account, in any systematic way, sentences (23.a-c) on the one hand and (23.d,e) on the other.  In the first place there is a major difference in intonation between the two sets of sentences.  (23.d,e) alone require a comma-intonation to set off what Thorne considers the vocative subject of the imperative, a fact which alone makes his analysis rather dubious.  Secondly, in sentences like (23.d) it is impossible to refer back to John by a third person pronoun:

(24) (a) John, take off your coat.
 (b) *John, take off his coat.

Sentences like (23.c), however, which do not require comma intonation after the subject, differ also from (23.d,e) in that they admit third person pronominal reference. For many people, his in (26) may refer to the person addressed, the subject of that sentence. Thus, the subject of (26) is much more clearly third person than is the subject of (24).

(25) Somebody take off your coat.

(26) Somebody take off his coat.

Thorne takes (26) to be ungrammatical; he considers it "an erroneous form found among educated speakers", which replaces (25). He points out that one says:

(27) Take off your coat, somebody.

But not, with the same meaning:

(28) *Take off his coat, somebody.

However, the fact that (28) is not acceptable provides no support for regarding (26) as having an essentially [+II person] subject. Even if (28) were transformationally related to (26), it would not be enough to attribute the ambiguity of (26) to analogy or hyper-urbanism. Such an "explanation" would give no account of why in contrast with (26), (28) can never have third person anaphora to its subject. In any case, (26) and (28) do not seem to be trans-formationally related.

 It is in fact rather easy to relate (27) and (28) to vocatives like (23.a,e). There are sentences parallel to (27), (28) but with somebody in initial position, separated from the rest of the sentence by comma intonation. Only that intonational difference separates (27') and (28') from (25) and (26), on the surface.

(27') Somebody, take off your coat.

(28') *Somebody, take off his coat.

Notice, however, that (28'), like (28), cannot occur if his is understood to refer back to the subject.

Furthermore, in forms which are unmistakably vocative, like (29),

(29) *John, take off his coat. (coref.)

his cannot refer back to the subject. We are not dealing in detail with the derivation of vocatives in this report (but see B.2). It is enough to suggest that (30') is a likely source for (30):

(30) John, take off your coat.

(30') John, you take off your coat.

Generalizing, we postulate that all the sentences above with comma intonation have you as the underlying subject. You is, of course, usually deleted. In this way, second person anaphoric reference to vocatives, including those where the vocative NP is indeterminate, is explained in the same way as the second person reflexives and tags shown in examples (19) to (22). Thus, what needs explanation is the fact that certain noun phrases, apparently really the subjects of imperative sentences, can nevertheless select third person anaphora. We take this to mean that those sentences have [+III person] subjects.

It might be convenient if in fact it turned out that subjects of imperatives could be quite freely generated. There is apparently no natural way of constraining the subjects of topmost imperatives so that they are second person NP's. Within the present grammar, the only possibility is to block imperatives having subjects with other features on the head N by, for example, leaving the SJC morpheme undeleted just in case the subject of a top imperative fails to meet the relevant conditions. Not only does this necessitate an otherwise unmotivated blocking transformation; it also introduces a major and unexplained difference between (top) imperatives and related sentences dominated by S, i.e. "subjunctives". (See NOM and (4. a-f) above.) (Generally, we refer only to topmost sentences as "imperatives".)

Apart from a few special cases like (26), however, where there really does seem to be a third person subject in an imperative, the restriction to second person subjects appears to be correct. It is beyond question that the subject of an imperative is, in some sense, being addressed by the speaker, even in cases where the subject NP appears to be third person. The impossibility of using in these subjects any third person NP which intrinsically implies that the referent is NOT being addressed makes this quite clear. All of the following are non-sentences whether taken as vocatives or imperatives.

(31) (a) *Your son come here.
     (b) *My ambassador to you come back.
     (c) *Me go away.
     (d) *Her kiss John.

It is not only in imperatives that certain 3rd person NP's can occasionally be used to refer to the person addressed.  Consider the sentence:  <u>The reader has undoubtedly noticed several errors in this report.</u>  On one reading it can be paraphrased in certain circumstances by, <u>You have undoubtedly noticed several errors in this report</u> of which it seems to be a stylistic variant limited (among other things) to cases where the writer or speaker is uncertain who in particular he is addressing.

In the light of this, consider the range of apparently third person subjects occurring in imperatives.  In the first place there are a number of examples which include or could include an underlying second person partitive, either with <u>of</u> or with <u>among</u>.  For example:

(32) (a)  The oldest of the girls (among you) sing a
           lullaby.
     (b)  One of the boys (among you) run ahead.
     (c)  ?A girl (among you) try to thread that needle.

(33) (a)  Everyone of you pick up $\left\{ \begin{array}{l} \text{?his} \\ \text{your} \end{array} \right\}$ towel.

     (b)  $\left. \begin{array}{l} \text{Every one} \\ \text{Everyone} \end{array} \right\}$ pick up $\left\{ \begin{array}{l} \text{his} \\ \text{?your} \end{array} \right\}$ towel.

(34) (a)  None of you move.
     (b)  *None move.
     (c)  No-one move.

(35) (a)  Somebody $\left\{ \begin{array}{l} \text{*of} \\ \text{?among} \end{array} \right\}$ you run to the door.

     (b)  Somebody run to the door.

It would be tempting to argue from (32)-(34) that all superficially third person subjects of imperatives come from NP's which dominate a second person partitive.  This would give a syntactically reasonable source for both second and third person features in anaphoric reference to the "third person" subjects--either to the features of the top NP or to those of the partitive.  As (33) shows, it seems that second person anaphora in such cases is preferable when the partitive is present while third person pronouns are more readily

used when there is no overt partitive. However, (36) suggests that
there are cases (especially those that could NOT incorporate an <u>of</u>
partitive, but only one with <u>among</u>--see (36')) which vary rather
freely between second and third person anaphora when there is no
second person partitive present.

(36) (a) The oldest of the girls put $\left\{\begin{matrix} \text{your} \\ \text{her} \end{matrix}\right\}$ purse
down and come here.

(b) One of the boys test $\left\{\begin{matrix} \text{yourself} \\ \text{himself} \end{matrix}\right\}$ while I wait.

(36') (a) The oldest of the girls $\left\{\begin{matrix} \text{among you} \\ \text{*of you} \end{matrix}\right\}$ ...

(b) One of the boys $\left\{\begin{matrix} \text{among you} \\ \text{*of you} \end{matrix}\right\}$ ...

Unfortunately for any attempt to relate the second person
characteristics of third person subjects of imperatives to the presence
within the NP of an underlying and perhaps deleted second person
partitive, there is no independent evidence for setting up such a
partitive in sentences where it fails to appear at the surface.

Moreover, second person <u>among</u> partitives within third person
NP's (as in (36')) allow second person anaphora <u>only</u> in imperatives;
they can scarcely be used, therefore, to explain the fact that third
person imperative subjects are much like 2nd person NP's. Consider
the possibilities of using second person anaphora in the following
situations. When in a higher or conjoined NP, [+II person] dominates
[+III person] in anaphora, the result is like (37):

(37) (a) John and you took $\left\{\begin{matrix} \text{*their} \\ \text{your} \end{matrix}\right\}$ shoes to the repair
shop last month.

(b) You of the men who are about to leave should
speak to $\left\{\begin{matrix} \text{*their} \\ \text{your} \end{matrix}\right\}$ supervisors immediately.

On the other hand, when [+II person] is in a partitive with <u>among</u>,
dominated by [+III person], it is the latter feature that operates
in anaphora in indicative sentences:

(38) The brightest boys among you have already finished
$\left\{\begin{matrix} \text{their} \\ \text{*your} \end{matrix}\right\}$ homework.

(Note that when the second person feature is within an <u>of</u> partitive there appears to be a choice, as in, <u>The brightest of you have already finished</u> $\left\{\begin{matrix}\underline{your}\\ \underline{their}\end{matrix}\right\}$ <u>homework</u>. This is irrelevant, however, since (36') demonstrates that <u>among</u> partitives would have to be postulated for at lease some third person imperatives.)

Thus, it is only in imperatives, like (39), that second person anaphora can be attributed to an <u>among</u> partitive dominated by a third person NP. But it was a peculiarity of imperatives that the postulation of underlying partitives was supposed to explain

(39)　The brightest boys among you finish $\left\{\begin{matrix}\text{your}\\ \text{?their}\end{matrix}\right\}$ homework as fast as $\left\{\begin{matrix}\text{you}\\ \text{?they}\end{matrix}\right\}$ can.

There is another reason for rejecting such an explanation, anyway. There are cases of third person NP's acting as imperative subjects which cannot possibly include partitives. One instance of a case where the partitive seems at least a little odd has already been given, in (35.a,b). The following, all of which are acceptable to many people, can not have second person partitives, as we show in (41).

(40)　(a)　The boy in the corner stand up.
　　　(b)　All the children in the front row be quiet.
　　　(c)　The oldest of the girls among the English
　　　　　　in this group sing a folk song.
　　　(d)　Nobody move.
　　　(e)　Everybody hurry up.

(41)　(a)　*The boy in the corner $\left\{\begin{matrix}\text{of}\\ \text{among}\end{matrix}\right\}$ you stand up.

　　　(b)　*All the children in the front row $\left\{\begin{matrix}\text{of}\\ \text{among}\end{matrix}\right\}$ you be quiet.

　　　(c)　The oldest of the girls among the English in this group $\left\{\begin{matrix}\text{?of}\\ \text{*among}\end{matrix}\right\}$ you sing a folk song.

　　　(d)　*Nobody $\left\{\begin{matrix}\text{at}\\ \text{among}\end{matrix}\right\}$ you move.

　　　(e)　*Everybody $\left\{\begin{matrix}\text{of}\\ \text{among}\end{matrix}\right\}$ you hurry up.

(In some cases the starred forms of (41) may be possible but not synonymous with the parallel sentences of (40).)

It seems to be necessary to recognize that while the referent of the subject NP of an imperative is addressed by the speaker, constraining the NP basically to the second person, nevertheless certain third person NP's can occur with second person reference. If a third person NP occurs in this way in an imperative subject it may apparently select either second or third person anaphora. We have no way of representing these facts in the grammar. It seems best to identify reference to the person addressed with the feature [+II person], to ignore second person partitives as irrelevant, and thus to exclude (40.a-e) and (32)-(35) from the grammar until the relationship between reference and the features on the noun can be more adequately dealt with.

There is another possibility, which we have not explored in detail. We have limited the imperative to a rather narrow set of constructions. It is likely that these are related in various ways to a number of the forms that are excluded from this treatment: sentences with modals, Wish-imperatives, Let-imperatives and vocatives, for example. Thus, there are sentences with third person NP's separated from the rest by comma intonation which act like vocatives but include a definite description.

> (42) (a) Boys, come here.
> (b) The boy in the corner, come here.
>
> (43) (a) Boys, don't (you) break that.
> (b) The boy in the corner, don't (you) break that.
>
> (a') *Don't boys, (you) break that.
> (b') *Don't the boy in the corner, (you) break that.

It may be that sentences like (42.a) should be derived with you as the deep subject and the third person NP outside the sentence, as for vocatives (cf. B.2). By a later transformation the third person NP could replace you.

Let-imperatives would provide yet another source for third person subjects. All the following are possible.

> (44) (a) Let the boy in the corner stand up now.
> (b) Let nobody move.
> (c) Let all the girls among you leave at once.

The deletion of Let (which is not understood here to mean allow) would produce satisfactory third person imperatives. However, it would be necessary to constrain Let-deletion in all sorts of un-explained ways to obtain:

(45) (a) Let no-one be fooled by his explanation.
     (b) Let your son come to school properly
           dressed in the future.
     (c) Let John be the first to go.
     (d) ?Let everybody not pay much attention to him.

While excluding:

(46) (a) *No-one be fooled by his explanations.
     (b) *Your son come to school properly dressed in
           future.
     (c) *John be the first to go.
     (d) *Everybody not pay much attention to him.

We therefore limit the grammar to second person imperative subjects.
Although it is quite clear that this will not account for all the
data, nevertheless it seems to be the nearest approach to a correct,
though limited, generalization that can be made at present.

Further evidence that all imperatives have, in some sense,
second person subjects may come from dialogs like the following.
We are not sure how to weigh this evidence.  It appears to be
relevant to the question of their deep structure, since third person
anaphora from <u>outside</u> the imperative is apparently impossible, even
if it occurs within the sentence itself.  It is assumed in (47) and
(48) that the second sentence of the dialog does not constitute an
explanation to a third party but is addressed to the same person.

(47)    The boy in the corner stand up. $\begin{Bmatrix} \text{You have} \\ \text{*He has} \end{Bmatrix}$ not done

$\begin{Bmatrix} \text{your} \\ \text{*his} \end{Bmatrix}$ homework.

(48) (a)   The eldest girl among you take off her shoes.
            $\begin{Bmatrix} \text{?She} \\ \text{You} \end{Bmatrix}$ brought mud in on them.
     (b)   The eldest girl among you take off her shoes.
            Put them in the fireplace, will $\begin{Bmatrix} \text{you} \\ \text{*she} \end{Bmatrix}$.

The following suggests that the same phenomena occur in tags:

(49) (a) The boy over there stand up, will you.
     (b) *The boy over there stand up, will he.

## 2. A Note on the Vocative

We have made no attempt to include vocatives in the formal treatment presented here, but a suggestion of how they might be included is perhaps in place. It may be observed that while we must distinguish between imperative subjects and true vocatives, the two cannot co-occur:

(50) (a) *You boys come here, boys.
(b) *Some of you men help me lift this, men.

What may be involved in instances such as these is some process of obligatory pronominalization, or deletion of identical material. Compare the grammatical sentences in (51) with (50):

(51) (a) You come here, boys.
(b) Some of you help me lift this, men.
(c) ?You come here, you boys.
(d) ?Some of you help me lift this, you men.

Notice that such second person pronominalization seems to apply to all sentences that include vocatives, not just to imperatives:

(52) (a) *Harry, Harry is wonderful.
     [+VOC]
(b) Harry, you are wonderful.
     [+VOC]
(c) You, Harry, you are wonderful.

If we assumed that all sentences could have a vocative, then we could account for the second person pronoun as a result of pronominalization which involved a vocative and any other NP in the sentence which happened to be referentially identical with the vocative. Under this analysis imperatives would be constrained so that the subject of the imperative contained a copy of the vocative NP. The advantage of this analysis would be that it used processes (pronominalization and equi-NP-deletion) needed elsewhere in the grammar.

Alternatively it is possible that the sentence to which a vocative is attached always contains a second person pronominal NP, marked in some way as co-referential with the vocative. Then (52.b) rather than (52.a) would be the deep structure. This would, of course, provide a somewhat more appropriate input to imperative transformations if they demand, as we suggest, a second person subject. Either source would effectively exclude (50).

C. Imperatives and Peremptory Declaratives

Katz and Postal observe that a sentence like:

    (53)  You will go home.

may be interpreted in either of two ways: (a) as a predictive statement or (b) as an order. Thorne makes the same observation about the sentences:

    (54)  (a)  You, John, will come.
           (b)  You will be examined by the doctor.

On the basis of such observations, these authors propose that sentences like (53) and (54) are ambiguous and may correspond to either of two different underlying P-markers: one with, and one without, an imperative morpheme.

There are, however, a number of significant syntactic differences between such sentences involving the "peremptory future", and true imperatives, which lead us to analyze (53) and (54) as declaratives (with a possible special interpretation) and not as ambiguously declarative or imperative.

(a) While the subject of a true imperative must include (in the sense suggested above) a 2nd person feature specification, this is not true of the peremptory futures in (55). (Note that though peremptory declaratives are usually future, they may occur in the present tense, e.g., such things are not done here.)

    (55)  (a)  Trousers will not be worn by women in this
               department.
          (b)  *Trousers, don't be worn by women in this
               department.

(b) Sentence adverbs such as certainly may occur in sentences involving the peremptory future but not in true imperatives:

    (56)  (a)  You certainly won't do that.
          (b)  *Certainly don't do that.

(c) While true imperatives can be conjoined with one another and peremptory futures can be conjoined with one another, a true imperative and a peremptory future cannot in general be conjoined.

(57)  (a)  Be a good boy while I'm away and don't
              touch any liquor.
      (b)  You will be a good boy while I'm away and
              you won't touch any liquor.
      (c)  *Be a good boy while I'm away and you won't
              touch any liquor.
      (d)  *You will be a good boy while I'm away and
              don't touch any liquor.

(Sentence (57.c) is possibly grammatical as a conditional imperative:
i.e., in the meaning:  "If you're a good boy while I'm away, you
won't touch any liquor".)

(d)  A peremptory future can be conjoined with a declarative; an
imperative in general cannot be conjoined with a declarative:

(58)  (a)  I hate girls in trousers, and you won't wear
              trousers again, my dear.
      (b)  You will not go to see that bloody war-picture,
              and you know why.
      (c)  *I hate girls in trousers, and don't wear
              trousers again, my dear.
      (d)  *Don't go to see that bloody war-picture, and
              you know why.

((58.c-d) must be distinguished from conditional imperatives like
Step inside and I'll hit you, which can, and indeed must be con-
joined to a declarative following them.)

      On the basis of these observations, we conclude that sentences
involving the peremptory future are declaratives, and do not contain
an imperative morpheme.  The imperative-like quality of such
sentences is, in our view, a matter of semantic interpretation:
any statement about the future--if its confirmation depends upon
the compliance of some persona other than the speaker with the
wishes of the speaker--may have this interpretation.  It may be
best to refer to this as a "pragmatic" rather than a "semantic"
aspect of the sentence.


D.  Imperatives, Requests and Questions

1.  Behavior Common to Imperatives and Requests

(a)  AUX-attraction

      Chomsky pointed out in 1955 that imperatives, like questions,
requests and wishes, undergo subject-auxiliary inversion  ( AUX-
ATTRACTION ).  Compare:

(59) (a) Don't you drink brandy?
     (b) Won't you drink a glass of brandy, please?
     (c) Don't (you) drink any brandy, now!

In non-negated imperatives such as:

(60) (a) (You) have some brandy.
     (b) (You) be a good boy.

inversion was said to apply to a $\emptyset$ auxiliary:

(61) You $\emptyset$ be a good boy $\Longrightarrow$ $\emptyset$ You be a good boy.

This vacuous permutation of a zero element permitted a uniform
treatment of subject-auxiliary inversion for imperatives but
made it hard to account for <u>You come here</u>, as opposed to *<u>Do
you come here</u>. Thus while <u>AUX-ATTRACTION</u> seems to apply to negative
and perhaps emphatic imperative sentences it is not a clear example
of a characteristic that is common to imperatives and requests,
because (a) the correct account of the presence of <u>don't</u> in negative
imperatives may not involve the general rule AUX-ATTRACTION and (b)
plain imperatives do not involve AUX-ATTRACTION (see Section E).

(b) Co-occurrence Restrictions

    Requests and imperatives share a number of co-occurrence
restrictions. For example:

(i) Stative verbs:

    Kiparsky (1963) and others have observed that a certain class
of verbs which Lakoff (1965) calls statives, occur neither in
imperatives nor in requests:

(62) (a) *Understand the answer.
     (b) *Want more money.
     (c) *Hope it rains.

(63) (a)
     (b) Would you $\left\{ \begin{array}{l} \text{*understand the answer,} \\ \text{*want more money,} \\ \text{*hope it rains,} \end{array} \right\}$ please?
     (c)

(ii) Adverbials:

    Kiparsky has also observed that certain adverbials fail to occur
in imperatives and requests alike. To repeat his examples:

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(64)  (a)  You (will) learn this language surprisingly
        fast.                                    [28]
    (b)  *Would you learn this language surprisingly
        fast.                                    [29]
    (c)  *Learn this language surprisingly fast. [30]
    (d)  Learn this language fast.                 [31]

(In the surface structure of examples (64.a,b) surprisingly is a
modifier of fast.)

Katz and Postal, as well as Lees, have noted that certain
preverbs do not normally occur in imperative sentences:

(65)  (a)  *Hardly  
    (b)  *Scarcely  } finish your work.  
    (c)  *Almost

This observation also holds for requests:

(66)  (a)  
    (b)  Would you { *hardly *scarcely *almost } finish your work, please?  
    (c)

Chomsky (1955) makes the observation that imperatives do not
occur with a past time adverb:

(67)  *Come yesterday.

Kiparsky notes that the same restriction holds for requests:

(68)  *Would you come yesterday, please?

Please occurs in both requests and imperatives as in:

(69)  (a)  Won't you step in, please?
    (b)  Step in, please?

On the basis of sentences like (69.a,b), Kiparsky proposed
that, in their underlying structures, requests include an IMP(erative)
morpheme, and that the underlying structures of requests and true
imperatives differ only in the auxiliaries involved.

2.  Differences between Imperatives and Requests

There are, however, a number of properties which are not
shared by requests and imperatives.

(a)  Third Person Subjects

Imperatives and requests differ significantly with respect to the apparently third person subjects which can appear in them. Generative grammarians agree that in English the subject of an imperative must correspond to the person (or at least one of the persons) addressed in the sentence. Kiparsky claims that the subjects of requests (like imperatives) "are confined to the 2nd person singular and plural" and maintains that (70) is ungrammatical:

(70)  Would your son look at himself in the mirror, please?

The above sentence, however, is quite acceptable in the following context:

"So your son, the prince, does not believe that Baby Jane kissed him while he was asleep? Would your son look at himself in the mirror, please? The rouge is still on his left cheek."

The following also seem to be grammatical:

(71)  (a)  Would your son come over, please, and help
           us with the planting?
      (b)  Could your soldiers please help us build this
           bridge, General Lee?

Sentences such as (70) and (71) where a request is made of a person not addressed in the discourse, usually imply that the request should be communicated to the person concerned. Sentence (70) perhaps means: "Would you suggest to your son that he look at himself in the mirror?" Sentence (71.b) means something like: "Could you please get your soldiers to help us build the bridge, General Lee?" In true imperatives as we saw above, it is crucial that the subject be the person addressed. Compare the requests in (71) with the true corresponding imperatives in (72):

(72)  (a)  *Your son  come over, please, and help us with
           the planting.
      (b)  *Your soldiers please help us build this
           bridge, General Lee.

This difference between imperatives and requests is exhibited rather clearly by:

(73)  Would you and your guests please not make so much
      noise?

Conjoined NP's like <u>you and your guests</u> may occur as subjects of requests. If such NP's are derived from two underlying sentences, then one expects (74) to be grammatical, as it is:

(74) Would your guests please not make so much noise?

Notice however, that the imperatives corresponding to (73) and (74) are ungrammatical:

(75) (a) *Please don't you and your guests make so much noise.
(b) *Please don't your guests make so much noise.

This we consider to be a significant difference between the two sentence types.

(b) Adverbials

The restrictions on sentence adverbs that may occur in requests are not quite the same as those on sentence adverbs that may occur in imperatives. Compare:

(76) (a) Could you possibly come over please?
(b) Will you perhaps have a cup of coffee with us?
(c) *Possibly come over, please?
(d) *Perhaps have a cup of coffee with us. (cf. D.1.b.ii above)

(c) Passive Forms

There are passive requests formed with <u>can</u>, <u>can't</u>, <u>could</u> and <u>couldn't</u> (but not with <u>will</u>, <u>won't</u>, <u>would</u> and <u>wouldn't</u>):

(77) (a) Can the soup be served after the hors d'oeuvre, please?
(b) Can't the curtains please be drawn?
(c) Could the tables please be decorated with flowers?
(d) Couldn't the piano be removed, please?

Passive imperatives are generally ungrammatical:

(78) (a) *Be allowed to leave.
(b) ?Be flattered by what he will say.
(c) *Be elected chairman.

In negative sentences it is apparently much easier to obtain grammatical forms, such as:

(79) (a) Don't be hurt by what he says.
     (b) Don't be misled by his flattery.

We do not attach too much weight to the fact that imperatives differ from requests in regard to the passive, since it would appear that the imperative modal is more like <u>will</u> than, say, <u>can</u>, and, as we observed, <u>will</u> does not occur in passive requests.

(d) Negatives on Modals

Negatives associated with the modals in requests do not carry negative force. Thus each of the following members of the pair expresses roughly the same request:

(80) (a) Will you help me, please?
     (b) Won't you help me, please?

(81) (a) Can you please move over a little?
     (b) Can't you please move over a little?

Negatives associated with the imperative auxiliary, on the other hand, carry negative force. Thus the members of the following pair are obviously not equivalent:

(82) (a) Help me, please.
     (b) Don't help me, please.

Notice, also, that while (83.a) has a double-negative interpretation, (83.b) is a simple negative.

(83) (a) ?Please don't not come here any more.
     (b) Won't you please not come here any more.

We do not know how much weight to attach to this observation. It is not clear what the source of the additional semantically rather empty negative is (cf. INTERROG, NEG) and consequently the significance of its appearing in both questions and requests but not in commands is still open.

We suggest, on the strength of most of this evidence, that the underlying structures of requests and imperatives must be distinguished to an extent greater than Kiparsky allows. We believe, in fact, that requests are probably best treated as a special subclass of (yes-no) questions, although this analysis, too, presents

certain problems.  Requests and yes-no questions have, in addition to subject-auxiliary inversion, several other common characteristics, which, unlike inversion, are not shared by imperatives.

3.  Characteristics Common to Requests and Questions

(a)  Negatives on Modals

Negatives associated with modals (and other auxiliaries) in yes-no questions, may, like negatives associated with modals in requests, lack negative force.  Compare the following examples with (80) and (81):

> (84)  (a)  Will he help me?
> (b)  Won't he help me?
>
> (85)  (a)  Can these people move over a little?
> (b)  Can't these people move over a little?

(b)  Indirect Quotations

In indirect quotation, embedded requests, like some embedded yes-no questions (which we do not deal with explicitly in INTERROG) are introduced by if:

> (86)  (a)  He asked John if he would please play the piano.
> (b)  He asked John if he thought it would rain.

Embedded yes-no questions may also, however, be introduced by whether, while embedded requests introduced by whether are questionable for some speakers:

> (87)  (a)  ?He asked John whether he would please play the piano.
> (b)  He asked John whether he thought it would rain.

Embedded imperatives, on the other hand, never are introduced by if; they may start with that, which never introduces questions or requests:

> (88)  I demanded that he play the piano.

(c)  Tags

Neither yes-no questions nor requests admit tags, while imperatives do.

(89)  (a)  *Will John come in, will he?
       (b)  *Will you please come in, will you?

(d)  Intonation

Yes-no questions and requests both generally have rising intonation:

(90)  (a)  Is it going to rain?
       (b)  Would you please pass the salt?

But imperatives generally have falling intonation:

(91)  Please pass the salt.

4.  Differences Between Questions and Requests

(a)  Some-any suppletion

Yes-no questions can undergo SOME-ANY SUPPLETION while requests cannot:

(92)  (a)  Will he give you some/any money?
       (b)  Will you give me some/*any money.

(b)  Conjunction

Yes-no questions may be conjoined with other yes-no questions and requests with other requests, but a yes-no question and a request cannot be conjoined very comfortably:

(93)  (a)  Is Mary going to do the dishes, and is John
            going to take out the trash?
       (b)  Will you please do the dishes, and will you
            please take out the trash?
       (c)  ?Is Mary going to do the dishes, and will you
            please take out the trash?
       (d)  ?Will you please do the dishes, and is John
            going to take out the trash?

(c)  Please

Notice, moreover, that although please can occur in certain questions as well as in requests, in requests the word please can be inserted after the subject while in questions this is not possible.  Compare the following:

(94) (a) Will you take the trash out, please?
     (b) What is the exact time, please?

(95) (a) Will you please take the trash out?
     (b) *What please is the exact time?

(d) Negation

Although, as has been pointed out above, a negative on the modal of questions and requests does not result in a negative sentence, it appears that only a request (and not a question) must have a clearly negative interpretation when the negative comes after the subject. Thus, as questions the following can have roughly the same meaning, (96.a) being more formal than (96.b). On this reading neither differs significantly from (96.c).

(96) (a) Will John not be going to town?
     (b) Won't John be going to town?
     (c) Will John be going to town?

Compare, as requests:

(97) (a) Will you please not jump in before I get out?
     (b) Won't you please jump in before I get out?
     (c) Will you please jump in before I get out?

It is impossible to get readings of the requests, (97.a) and (97.b), that are paraphrases. In requests, then, a negative not directly associated with an auxiliary must have full negative force, though in questions it may lack this. Such a difference between requests and questions may constitute a rather serious obstacle to the claim that the former are a special sub-type of questions. This is consistent with our analysis of Yes/No questions (see INTERROG) which, we argue, are conjuncts, differing only in that one is negative, the other positive. Either the negative or the positive sentence is deleted on the way to the surface, accounting for the lack of negative force in many negative questions. However, requests cannot be regarded as relatively uncommitted attempts to discover which of a related pair of positive and negative statements is true. A request is an endeavor to bring about one or the other of the two possible states of affairs. For example, in (97.a and b) to bring it about that the person addressed (a) refrains from jumping in, and (b) jumps in (respectively) before the speaker gets out. Only (b) is at all similar in meaning to (97.c).

Thus, any attempt to associate requests and yes/no questions will need to set up a separate semantic apparatus, presumably working on only one of the related conjuncts. It is not clear that this can be done economically or even consistently. This does not, of course, constitute positive evidence for regarding requests as a kind of imperative.

5. Conclusion

In spite of the problems raised by these differences, it may be possible to treat requests as a subclass of yes-no questions with certain special syntactic properties, some at least stemming from their peculiar semantic characteristics.

Just as there is no clear reason to posit an Imperative morpheme, SJC, in the underlying structure of peremptory declaratives, so there is no clear reason to posit such a morpheme in the underlying structure of requests. Requests do not undergo any of the transformations, and do not obey any of the surface constraints which are exclusively characteristic of imperatives. (AUX-ATTRACTION in requests can be triggered by WH just as well as it can by SJC.)

The analysis of requests as questions with a special interpretation receives further support from the fact that in addition to examples in which the form of the request is that of a yes-no question, we find such examples as:

(98)  Why don't you (please) leave me alone?

The suggestion is that any declarative or interrogative can be interpreted as a peremptory declarative or request, respectively, provided that it obeys appropriate selectional restrictions. It is not clear how far such a device will make it possible to explain the interrelationships between the various forms which we have noted. However it is clear that the earlier assumptions, which identified imperatives and requests, and failed to account for the close ties between the latter and questions, leave too much of the syntax unexplained.

E.  The Underlying Auxiliary of Imperatives

1.  The Presence of a Modal

Lees (1964b), and Klima (1964c), both make the following observation: do-support in non-imperative sentences depends on the first element that follows TENSE in the auxiliary or in the verb phrase; do-support does not occur if this element is be, the auxiliary have, or a modal.

(99) (a) *He doesn't be nice.
     (b) *He doesn't have done it.
     (c) *Does he be nice?
     (d) *He does have done it.

In these cases EMPH or NEG moves to the right of be, have, or a modal.  Emphatic and negative imperatives, however, require do-support, even for the verb be:

(100) (a)  Do be nice
      (b)  Do be there by five.
      (c)  Don't be silly.
      (d)  Don't be sitting there then.

They take this as evidence that all imperatives contain a modal element which operatives in Preverbal Particle Placement, so that, for example, we get (101) and then (102).  (Note that in this grammar SJC covers TNS+Modal but at this point we follow Klima's model.)

(101)  NEG you TNS will be -ing sit there then ⟹ (by PPP-rule)

(102)  you TNS will not be -ing sit there then.

If imperatives did not have a modal in their underlying structure, we would instead have a derivation from (101') to (102') by Preverbal Particle Placement, which, on deletion of you would yield the incorrect (101''), or (102'') if AUX-ATTRACTION had also applied.

(101')  NEG you TNS be -ing sit there then ⟹ [by PPP-rule]

(102')  You TNS be not -ing sit there then.

(101'')  *Aren't sitting there then.

(102'')  *Be not sitting there then.

If on the other hand we accept Lees' and Klima's claim, appropriate deletions after AUX-ATTRACTION will lead to the application of DO-SUPPORT, giving (100.d) from something like (102).

2.  The Choice of a Modal

Chomsky (1955) postulated that imperatives are derived from strings containing any one of those modals which never occur with past time specifications.  This would automatically ensure that imperatives would only occur with non-past adverbials, but would permit multiple derivations for apparently unambiguous sentences. According to Klima (1964c) the modal will accounts for the formation of the usual tag question by a copying rule which derives (104) from (103):

(103)  (You will) close the door.

(104)  (You will) close the door, won't you?

Kiparsky (1963), however, has drawn attention to the fact that other tags occur after imperatives (cf. Section II.E.).

Lees (1964b) argues that the underlying modal element is a zero morpheme, which he calls IMP, but which, in our analysis, is taken to be identical with the subjunctive (SJC).  This marker functions as a modal in such rules as AUX-ATTRACTION and PREVERBAL PARTICLE PLACEMENT.

Lees' analysis, incorporating a special zero modal that also acts as an affix, is based on the observation that the ordinary affirmative imperative of the verb be has the form (105) and not (106):

(105)  Be there by five.

(106)  *Are there by five.

He points out that, morphologically, the imperative in (105) is not the ordinary finite verb-form (resulting from the attachment of the element TNS to the underlying verb-stem).  He concludes that the imperative is a verbal affix in its own right, parallel to TNS but with no effect on the verb to which it is attached.  No ad hoc rule is then needed for deleting a postulated auxiliary in imperatives, since the auxiliary is a phonologically unrealized morpheme, moved onto the verb or triggering DO-support in appropriate ways. Were it not treated as an affix, but as an ordinary modal, it would require special deletion and would never trigger DO-SUPPORT.  As (107) shows, DO-SUPPORT must apply (as if SJC were TNS), when EMPH or NEG has  prevented it from moving onto the verb.

(107) (a)  Do come here.
      (b)  Don't come here.

However, the situation is more complicated.  Consider the derivation of the following sentence, in which the subject, you, has not been deleted.

(108)  You sit down.

After AUX-ATTRACTION has taken place, this sentence would have looked something like (109).

(109)  SJC you sit down.

Since the "affix", SJC, would be prevented by you from moving onto the verb, it would trigger DO-SUPPORT, resulting in (110), which is ungrammatical for most speakers.

(110) *Do you sit down.

To generate (108), as we must, we could either delete SJC just in case neither EMPH nor NEG is present, or alternatively perform AUX-ATTRACTION only when one of those morphemes is present. The first solution is essentially the one rejected by Lees. Both involve ad hoc manipulation of the rules, but it appears that there is simply a certain amount of untidiness in the data which Lees' solution could handle no better than any other. In our rules we have chosen another possibility. It is apparent that the rule of AUX-ATTRACTION which is applying here is rather different from the general rule of that name. Apart from possible constraints on the application of the rule mentioned above, there is the fact that we no longer have any motivation for an initial IMP morpheme, since we have a special imperative form in the AUX--i.e. SJC. Hence there is nothing parallel to WH or [+Affect] to attract the AUX. It is possible that we are dealing with a different rule, and thus that this IMPERATIVE-SUBJ-AUX-INVERSION can follow Affix-switching. Since SJC acts as an affix it will then be available for inversion with the subject only if there is a NEG or EMPH present to prevent it from moving onto the verb. To prevent (110) it is necessary to make YOU-DELETION obligatory if do precedes it. This is well motivated, though, as we show in discussing TOP SJC DELETION (rule 3, below), it has some unfortunate consequences.


F.  Tagged Imperatives

Two proposals have been made to account for tags in a generative grammar: (a) a copying rule and (b) conjunction reduction. In the copying-rule proposal, (cf. Klima, 1964) a sentence such as (111.b) is derived by copying the auxiliary and the (pronominalized) subject of the input sentence (111.a) and appending them as a tag:

(111) (a)  Writers will never accept suggestions.  $\longrightarrow$
      (b)  Writers will never accept suggestions, will they?

Both Lees and Hasegawa have noted that this rule will not account for the peculiarities of imperative tags. In previous analyses, in which imperatives and requests were closely related, it seemed reasonable to derive tag-imperatives from requests, but to do so in fact introduces additional problems; not only is it hard to see how tags such as those in (112) can be accounted for by copying, it is also to be noted that requests do not admit any tags as shown in (113) (cf. Section II.D.3.c, above).

(112)  Do help me, won't you?

(113)  *Will you please come in, will you?

A copying rule that derived tagged imperatives from requests would require that a modal-deletion rule apply to the underlying request whenever the copying rule has applied.  Thus, imperative tags would be the only case where tag-formation entailed an obligatory deletion in the original sentence, for there are indicative sentences with both occurrences of the auxiliary and subject, such as John will come, won't he?

There are other forms which a copying rule can't handle.

As has previously been noted, passives may occur in requests containing the modals can and could:

(114)  Could the windows please be opened?

No tagged imperatives exist for such requests:

(115)  (a) *The windows please be opened, could they?
       (b) *The windows be opened, could they please?

Hence if tagged imperatives are derived by a copying rule from requests, an ad hoc condition must block the application of the rule to passives.  For these reasons it seems to us that the copying rule proposal must be rejected for tagged imperatives.

In the second proposal for deriving tagged imperatives, the conjunction-reduction proposal (cf. Lees, 1964), tagged imperatives are derived in two steps:  (a) sentence conjunction and (b) reduction of the second sentence, just in case it meets a certain set of conditions.  These conditions are:  (a) the preceding imperative must not contain NEG and (b) the modal in the tag is will, with or without, not.  We can easily extend this condition, however, to include other tags as in the following:

(116)  (a)
       (b)  Come here, $\begin{Bmatrix} \text{can} \\ \textbf{can't} \\ \text{could} \end{Bmatrix}$ you?
       (c)

A derivation of a tagged imperative would begin with the following two underlying strings.  For the moment it is irrelevant whether (117.a) and (117.b) must be conjoined in some way in the base.

(117)  (a)  You SJC come with us
       (b)  CONJ [you will come with us]
            [+or]
            [+WH]

            [NEG you will come with us]

The first step in the derivation is the conversion of (117.b) into an alternative question and then to the yes-no question (118.b):

(118) (a)  you SJC come with us .
      (b)  WH you will come with us .

At this point a problem arises.  (119) is ungrammatical and so, it seems, is any alternative version with a different conjunction.

(119) *Come with us and will you come with us?

Hartung (1964), pp. 43-45, has argued in favor of extending the power of transformations to combine sentences in such a way that a rule could reduce the two parts of (118) directly to (120).

(120) ?Come with us, will you come with us.

The repeated material would be removed by rules required independently in the grammar, to give (121).

(121)  Come with us, will you?

We do not in fact provide rules to generate any tags in this grammar.  For further discussion see INTERROG III.B.3.


G.  BLOCKING PROBLEMS

It is necessary to block imperative sentences if they

(a)  contain a subject NP which is not [+IIperson] (but see section B).  This enables us to exclude

(122) (a) *Me stand up .
      (b) *Your father come here .
      (c) *Him try to run faster.

(b)  have, as subject, an NP which is not an Agent.  (This assumes that certain intransitives, such as run have agentive subjects.  See LEX for discussion.)  In this way we exclude stative verbs from imperatives, as in (123).

(123) (a) *Understand this part of the book.
      (b) *Be tall.
      (c) *Hear all of the discussion.

These constraints do not apply to embedded imperatives, i.e. those sentences that we refer to as subjunctives.  Thus, the following are

quite acceptable:

(124) (a)  It is necessary that I stand up.
      (b)  I demand that your father come here.
      (c)  It is imperative that you understand this part
            of the book.
      (d)  I propose that we hear all of his arguments.

Consequently, the constraints on imperatives must be trans-
formational rather than selectional or sub-categorial.  Given our
assumption that subjunctives are just embedded imperatives (which may
be something of an oversimplification) it is necessary to use a
last-cyclic transformation to block imperatives containing subjects
which are either not second person or non-agentive.  This will
recognize the SJC morpheme in the top S.  (Recall that we arbitrarily
chose not to allow such [+III person] imperatives as (26)).

In subjunctives, it is necessary that SJC be deleted in order
to exclude such sentences as (125).

(125) *I insist that John does not be given that fellowship.

In embedded sentences SJC simply prevents the verb from acquiring
an indicative form such as:

(126) (a)  *Bill demanded that John left.
      (b)  *Bill will demand that John leaves.

It can then be deleted.  Since SJC and TNS are mutually exclusive in
our base rules, no other mechanism is required to prevent (126)
from being generated.  As long as SJC has been generated in the base,
that is enough.  There is one small problem in using SJC in this way.
To prevent (125) it is necessary that SJC be deleted before DO-
SUPPORT applies.  But the deletion of SJC must be effected by the
higher sentence into which it is embedded.  Consequently, it must
take place on a cycle higher than the sentence in which it appears.
If DO-SUPPORT (see NEG page 59) is always to apply later than
EMBEDDED-SJC-DELETE the former rule must be last cyclic yet apply to
embedded sentences.  Although such last-cyclic rules have been
discussed (e.g. by Ross (1967)), we have generally assumed in this
grammar that last-cyclic rules apply only to the topmost sentence--
because of the convention that transformations do not in general look
below the sentence on which they are working.  Nevertheless, for this
particular purpose we assume that DO-SUPPORT is last cyclic, yet
applies to all appropriate parts of the string.

The SJC of all embedded sentences will already have been deleted
by then, but EMBEDDED-SJC-DELETE only applies to embedded SJC's,
because of its form.  Consequently, when DO-SUPPORT applies, SJC
can still be present in the topmost sentences and it, appropriately,
triggers that rule.

We can now return to the problem of blocking third person or non-stative imperatives like (122) and (123) respectively but not subjunctives like (124). If a non-terminal like SJC is left in any output string it is reasonable to assume that that string should block. We have deleted all instances of SJC in lower sentences, by EMBEDDED-SJC-DELETE. Consequently (124) can be generated. We now propose a last-cyclic TOP-SJC-DELETE to follow DO-SUPPORT, deleting SJC just in case both (1) the subject is [+II person] and (2) the subject is [+Agent].

Thus, although like Lees (1964b) we have a single morpheme acting as both modal and affix we do not specifically give it zero phonological shape, allowing it to disappear, but use that same morpheme to block unwanted sentences. The process, as we have described it, is reasonably neat. (Compare discussion of Lees in E.2 above.)

Now, since we no longer have an initial IMP morpheme there is little motivation for having the general AUX-ATTRACTION rule apply to imperatives. (See Katz and Postal (1964b); NEG p.57; and E.2 above.) We can account better for the data, especially examples (108) - (110) above, if we postulate a late rule IMPERATIVE-SUBJ-AUX-INVERSION, which inverts subject and AUX. This must follow AFFIX-SHIFT, to allow SJC to move onto the verb in (110), You come here, leaving nothing dominated by AUX in that sentence. It precedes TOP-SJC-DELETE, of course.

We are probably losing a generalization by completely separating S-INITIAL-AUX-INVERSION and IMPERATIVE-SUBJ-AUX-INVERSION, and there may well be some way of recapturing the fact that these two rules possess much in common while accounting for all the data. However, sentences like Hardly ever did he go, where TNS is prevented from moving onto the verb solely by the presence of he to its right, indicate that S-INITIAL-AUX-ATTRACT must precede AFFIX-SHIFT.

III. TRANSFORMATIONAL RULES

The following rules significantly affect the derivation of imperatives but are given elsewhere in the UESP grammar:

1. Reflexivization . . . . . . . . . PRO Rule (p.46)

2. Affix-Shift . . . . . . . . . . NEG Rule 8.

3. DO-Support. . . . . . . . . . . NEG Rule 10.

4. NEG-Contraction . . . . . . . . NEG Rule 11.

1.  Embedded SJC Deletion (Obligatory)

S.I.    X $_S$[ X  SJC  X]  X

       1     2   3   4   5

S.C.    Delete 3.

Conditions:
1. Obligatory
2. 1 or 5 is not null

Notes:
1.  Condition (2) is intended to ensure that the rule applies to embedded instances of SJC.  Depending on the analysis of adverbs in such sentences as <u>Come here immediately</u>, it may be necessary to change the form of this condition.

2.  The rule must follow TO-REPLACE-AUX (see NOM) so that the AUX is not empty at the stage when that rule applies.  Then we can obtain either (127) or (128):

    (127)  It is important for John to come soon.

    (128)  It is important that John come soon.

3.  The rule must precede DO-SUPPORT (see NEG), in order to obtain (129) rather than (130).  This distinguishes the rule sharply from TOP SJC DELETION.  (Rule 3, below).

    (129)  I insist that John not come so often.

    (130)  *I insist that John do not come so often.

4.  The rule need not precede either AFFIX SHIFT or YOU DELETION.

Examples:

A.  Grammatical

    (131) (a)  I insist that you not leave as early as John.
          (b)  It is important that he understand the answer.
          (c)  I demand to see Bill.  (with TO REPLACE AUX)

Notes:
1.  Example (131.a) is generated rather than (132.a) because SJC is deleted before DO-SUPPORT applies (assuming, as we have not

done elsewhere, that DO-SUPPORT is last cyclic).

2. Example (131.b) is obtained unlike (132.b) because SJC has been deleted independently of TOP SJC DELETE - which would have failed to delete SJC, blocking the sentence, because <u>he</u> is neither second person nor Agent.

B.  Ungrammatical - excluded

        (132) (a) *I insist that you do not leave as early as John.
             (b) *He understand the answer.


2.  Imperative Subject - AUX Inversion (Obligatory)

S.I.  (S CONJ)*  #  X  NP  X  <u>SJC (NEG),</u>  X

    1        2  3  4  5   6       7

S.C.  1)  Add 6 as left sister of 4.
      2.  Delete 6.

Condition:
    1)  The rule applies in the last cycle.
    2)  5 does not contain [+V].

Note:
    The rule follows AFFIX SHIFT.  Condition (2) then prevents it from applying to <u>You come here,</u> since SJC is to the right of <u>come</u> when it would apply.

Examples:

A.  Grammatical
        (133) (a)  Do come soon.
             (b)  Please do hurry.
             (c)  Don't run.
             (d)  Don't you run.
             (e)  ?Do someone help him quickly.

Notes:
    1)  In (a), (b) and (e) EMPH prevents SJC moving onto the verb; in (c) and (d), NEG does.  Compare (a) and (b) with (134.a,b) which contain no EMPH.

    2)  We include (e) since, although questionable, it is not nearly as bad as (135).  The latter can be easily excluded by a well-motivated obligatory application of YOU-DELETION (q.v.), and the data can be handled by more general rules if (133.e) is included.  In fact we

have no way of obtaining (133.e) in this grammar because we do not
have a [+II person] "someone", and our rules (see rule 3 below)
exclude third person subjects in imperatives.  But if we could
get <u>someone help me</u>! we would generate (133.e).

B.  Ungrammatical - excluded

> (134) (a) *Do come soon.
>       (b) *Please do hurry.

Note:

These must be understood to contain no EMPH.  Consequently
SJC is to the right of the verb and condition (2) blocks application
of the rule.

C.  Excluded by Other Rules

> (135) *Do you help him quickly.

Excluded by YOU-DELETION (rule 4, below)

3.  Top SJC Deletion (Obligatory)

S.I.   X   (SJC)$\begin{Bmatrix} \text{EMPH} \\ \text{NEG} \end{Bmatrix}$ NP   X   (SJC)   X

    1    2     3     4   5    6    7

S.C.   1)  Delete 6.
      2)  Delete 2.

Conditions:
    1)  This rule applies on the last cycle.
    2)  4 is $\begin{bmatrix} \text{+II person} \\ \text{+ Agent} \end{bmatrix}$

Note:

Because rule 2, IMPER SUBJ-AUX INVERSION, needs to recognize
SJC, this rule must follow it.  After the application of rule 2,
SJC may appear in either of two positions - before the subject
(separated from it by NEG or EMPH) and to the right of the verb.  The
SI of this rule has to be rather complex to handle both possibilities;
furthermore only one S.C. can occur on any one application of the rule.
The fact that this is necessary suggests strongly that IMPER SUBJ-AUX
INVERSION should be stated in some way that avoids reference to SJC -
or that this transformation is not the right way of constraining the
subjects of imperative sentences.

Examples:

A.  Grammatical

       (136) (a)  You come here.
           (b)  Give me the book.
           (c)  Do hurry up.
           (d)  Don't run.

Note:

    Examples (a) and (b) result from the application of S.C. (1),
(c) and (d) from the application of S.C. (2).


B. Ungrammatical - excluded

       (137) (a)  *John go home.
           (b)  *Me work.
           (c)  *Do him go.
           (d)  *Understand the answer.

Note:

    Examples (a) - (c) violate condition (2) in that their subjects
are not [+II person], while example (d) has a subject which is not
[+Agent], thus failing to meet the other half of that condition.


4.  YOU-DELETION

S.I.    X   NP    X   SJC   X
$$\begin{bmatrix} +II \\ + \text{Pro} \\ + \text{Def} \end{bmatrix}$$

        1    2    3    4    5


S.C.  Delete 2

Conditions:
    1)  The rule applies in the last cycle.
    2)  Obligatory if 1 is not empty but does not contain NEG.
    3)  Optional otherwise.


Notes:
    1)  This rule must follow REFLEXIVIZATION, to get Shave yourself;
and follows IMP-SUBJ-AUX-INVERSION so that condition (2) of this rule
can apply correctly.  It must also follow TOP SJC DELETION so that you
is still in the input to that rule.

2) The fact that condition (2) must be set up in a general fashion to prevent *Please you come here is an argument for blocking *Do you come here by means of that condition rather than by, for example, preventing do from occurring with an overt subject (cf. example (133.e)).

Examples:

A.  Grammatical

   (138) (a) Come here
      (b) You come here.
      (c) Don't do that.
      (d) Don't you do that.
      (e) Do try harder.
      (f) Please try harder.
      (g) It is important that you run fast.

Note:

  Examples (a) and (b) and examples (c) and (d) are pairs in each of which respectively this rule has and has not applied, according to the option.  Examples (e) and (f) are the result of obligatory application.  The rule does not apply to (g) because you is in a lower sentence.

B.  Ungrammatical - excluded

   (139) (a) *Please you come.
      (b) *Do you come.
      (c) *It is important that run fast.

Note:

  Examples (a) and (b) violate condition (2).  Example (c) could not be obtained from this rule since even if you had been subject of run, that is in a lower sentence.

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# GENITIVE

## Contents

# GENITIVE

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## II  INTRODUCTION AND SUMMARY OF PREVIOUS ANALYSES

Since the term "genitive" has not been widely used in transformational grammar it may be useful to start with a definition. Very roughly, we mean by this term an NP marked with the apostrophe in writing, like John's, the man's and so on. We provide more of an adequate discussion with examples at the beginning of III.A and for the moment it is necessary only to add that we do not intend the term to cover prepositional phrases like of the man, although these are clearly related to genitives.

There have been a number of limited transformational studies of certain aspects of the genitive construction, but no general, overall treatment of the genitive and related forms. It is not obvious in fact that there is a single closely related set of facts deserving separate study and falling under the heading of the "genitive", since on the one hand there appear to be a number of rather clearly distinct sources of genitive marking on NP's, while, on the other, these marked NP's appear in widely divergent surface structures under varying constraints. We have not attempted to investigate all the possibilities of relating genitives and their paraphrases. For one thing, to do so would probably necessitate postulating a more intimate relationship between syntax and semantics than we have been willing to consider. For that reason, and also because their work is somewhat eclectic, we have not seriously discussed the semantic analyses by Bendix (1966) and Lyons (1967). Some of the most interesting unsolved questions relating to genitives lie in the area of semantics. (Especially problems connected with the status of have and be.) Nevertheless it is important that we deal with certain aspects of the grammar of genitives, despite the fact that we have to leave a great number of basic problems unsolved, because the genitive is a pivotal construction in a case grammar incorporating Chomsky's (1967) $\bar{x}$ convention, as this grammar does.

The significance of genitives to the amalgamation of Filmore and Chomsky derives from two related sources:  (1) a good number of genitives seem to be surface neutralizations of deep structure cases on nouns, suggesting an important parallelism between genitives within NP and subjects of sentences, and (2) the parallelism in deep structure between NP and S is much easier to maintain if the differences between genitive and subject can be regarded as transformational in origin to a degree impossible to maintain naturally if sentences possess deep structure subjects. We shall

therefore be concerned here with the question how far genitives can be derived from cases generated within NP's and how far this in turn supports our basic theoretical position. It is probably worth while noting, however, that intuition is notoriously vague and capricious in this area, making it difficult to handle the data and unwise to rely too heavily upon the results as evidence.

Because the aims of this paper are somewhat more restricted than is the case in other parts of the grammar, we shall not attempt a detailed critique of previous analyses at this point. For one thing, the literature is rather slight; for another, the analysis of the genitive is very intimately connected with the theoretical orientation of a grammar, so that a critique of other treatments in a vacuum would serve little purpose. Thirdly, for the reasons outlined in the previous paragraph, we are rather more interested, in this paper, in seeing how an $\bar{x}$ grammar with cases would handle genitives than in dealing with problems raised by genitives themselves. The following summary is therefore rather perfunctory.

Most of the arguments concerning genitives originate in Lees (1961a), Smith (1964) or Jackendoff (1967), though Fillmore (1967) and Chomsky (1967) include important points not raised by any of those three.

Lees (1961a) showed briefly how the genitive marker could be introduced by certain nominalizing transformations. In the enemy's destruction of the city, the deep structure subject of the original sentence was marked, while in the city's destruction by the enemy it was the object. Within Lees' framework most genitives could be handled in a fairly uniform manner, though he would probably have needed to deal quite separately with possessives like John's house. Given the basic theoretical position, which we have adopted it is clearly impossible for us to use Lees' arguments or his sources as they stand, since he depends on a sentential origin for many constructions which we argue elsewhere are noun phrases in deep structure (see INTRO).

Smith (1964) formulated rules to obtain possessive genitives (e.g. John's house) from relative clauses containing have, by a derivation closely analogous to that which obtains preposed adjectives from relative clauses containing a copula. Most of her arguments for this derivation appear to be wrong, as we shall show, while there are sometimes strong arguments for using as deep structures, relative clauses quite different from those which Smith proposed.

Fillmore (1967) first suggested the possibility of relating certain genitives to cases on nouns but he did not take his proposal very far, being concerned to exhibit (in ways which we shall argue are inappropriate) a syntactic distinction between "alienable" and "inalienable possession" and to limit deep structure cases on nouns to "inalienable possession". Chomsky's (1967) proposal to derive some genitives in the Determiner in deep structure represents an adaptation of basically the same point of view to a deep structure with subjects, and its extension, too, to include the "subjects" of derived nominals (e.g. destruction) among genitives obtained in this way. The position adopted here represents in effect an amalgamation and extension of the points of view of Fillmore and Chomsky and we shall argue that in fact a great number of genitives can best be derived by preposing ("subjectivalizing") certain deep structure cases, using well motivated rules. (See CASE PLACE.) The problem of distinguishing such genitives from those others which seem to be derived from relative clauses and at the same time showing the relationships that hold between all genitives remains the most difficult; it does not appear to have been seriously discussed before.

Jackendoff (1967) was concerned mainly with the relationship between forms in which the genitive appears to the left of its head (e.g. John's house) and those in which the genitive appears to the right (e.g. a house of John's) or alone, (e.g. the house is John's). He showed that there were a number of interesting relationships holding between various of these forms and proposed a way of accounting for these relationships. Although we find his arguments presuasive, we find it necessary to reject Jackendoff's proposals for reasons which we give in detail.

It is worth mentioning that because of the way in which genitives are dealt with here. This paper should be read in conjunction with CASE PLACE, preferably after it since many of the arguments assume a familiarity with that section.


III.  DISCUSSION AND ANALYSIS

A.  Preliminary Observations and Definitions

1.  The Data

The genitive in English is marked by an /s/ homophonous with the normal plural marker unless (1) the genitive NP is a definite pronoun, when special suppletive forms occur:  her, hers, his, etc.;

or (2) the NP already bears the normal plural marker, like <u>tailors'</u>, <u>hens'</u>; or (3) the NP is a proper Noun ending in /s/: <u>James'</u>, <u>Lees'</u> (in some dialects). All underlined NP's in the following are genitives.

(1) (a) <u>the man's</u> hat; <u>her</u> coat; <u>John's</u> book
    (b) <u>the man's</u> arm; <u>their</u> heads
    (c) one of <u>John's</u> books
    (d) <u>the enemy's</u> destruction of the city
    (e) <u>the city's</u> destruction by the enemy
    (f) <u>the man's</u> receipt of the letter
    (g) <u>the man's</u> picture (ambiguous several ways)
    (h) <u>the man's</u> careless driving
    (i) <u>the man's</u> driving carelessly
    (j) <u>yesterday's</u> paper
    (k) <u>men's</u> clothing
    (l) <u>the animals'</u> legs

We shall refer to such instances, all of which are to the left of their respective head nouns, as "preposed (attributive) genitives", in contrast with the following, which may be called "postposed (attributive) genitives". In (2) the genitive is to the right of the head noun, separated from it by <u>of</u>.

(2) (a) a hat of <u>the man's</u>
    (b) a coat of <u>hers</u>
    (c) the picture of <u>the man's</u> that he values most highly
    (d) that incessant talking of <u>John's</u>

There is yet another distinct environment in which genitives occur: to the right of the copula. Examples, of these, which we refer to as "predicate genitives," follow in (3):

(3) (a) that book is <u>the man's</u>
    (b) the sugar is <u>hers</u>
    (c) the best proposal is <u>John's</u>
    (d) the decision is <u>hers</u> (to take)

There is one more superficially distinct environment in which genitives occur: in noun phrases from which the head has been deleted (after reduction to <u>one</u> by quite general rules. See PRO). It is possible to relate preposed genitives to these, so that we need not consider the two essentially distinct. However, it may be possible to relate these "substantive" genitives, as we shall call them to predicate genitives. The problem, to be discussed in detail later, is whether predicate genitives can always be derived from preposed via substantive forms.

(4)  (a)  John's book is on the table but <u>Mary's</u> is here.
     (b)  Although Sue left her books at home, I brought
          <u>mine</u>.
     (c)  John's umbrella is near <u>yours</u>.
     (d)  Though John believed Sue was Bill's wife, she
          was in fact <u>mine</u>.

At this point it is necessary to discuss briefly the term
"possessive." Jackendoff (1967), for example, makes little attempt
to distinguish possessives from what we are referring to as
"genitives." Smith (1964) on the other hand was quite clear that
she was concerned only with a limited selection of genitives, those
in fact which could be related to deep structure relatives with
<u>have</u>, (e.g. <u>John's house</u>: <u>the house that John has</u>). For the moment
it is convenient to include under the term "possessive" many of
those genitives which appear not to be cases on their head nouns,
such as the following:

(10) (a)  John's father           (Kinship)
     (b)  the book's covers ⎫
     (c)  the hotel's lobby  ⎬    (Relational:
     (d)  John's arm         ⎬     Part-whole, etc.)
     (e)  John's jacket (?) ⎭
     (f)  the plank's length      (Measure)
     (g)  John's expression       (Characteristics,
                                   mental states, etc.)
     (h)  John's horse [which he  (Temporary
             happens to be riding] possession)
     (i)  John's horse [which     (Ownership)
             belongs to him]

It will later become possible to distinguish between these
forms more sharply but for the moment there is some convenience
in being able to keep them all together as "possessives," and
this is semantically not too unsatisfactory.

A distinction has been made (e.g. by Fillmore (1967a) and
Chomsky (1967)) between alienable and inalienable possession,
dividing the examples of (10) into two groups. We shall question
the significance of the particular distinction which has been
made. Among words which have been proposed (e.g. by Fillmore)
as the head of an inalienable possessive are <u>eye</u>, <u>father</u>, <u>secretary</u>
(Fillmore 1967a, examples 154-155). Some of these, like <u>eye</u> or
<u>nose</u> can enter special constructions like (11.i.a). Although, as

(11.i and ii) show, some kind of syntactic distinction appears to
be relevant, it is not clear what is involved. Nor, as we shall
show later, is there much justification for the way in which the
notion of inalienability has been used. However, we are only try-
ing to exhibit the use of the terms themselves at this stage.

(11) (i) (a) I touched the man's $\begin{Bmatrix} \text{sleeve} \\ \text{nose} \\ \text{eyelash} \end{Bmatrix}$ with my finger.

(b) I touched the man on $\begin{Bmatrix} \text{his} \\ \text{the} \end{Bmatrix} \begin{Bmatrix} \text{?sleeve} \\ \text{nose} \\ \text{eyelash} \end{Bmatrix}$ with
my finger.

(ii) (a) I touched the man's $\begin{Bmatrix} \text{desk} \\ \text{brother} \end{Bmatrix}$ with my finger.

(b) *I touched the man on $\begin{Bmatrix} \text{his} \\ \text{the} \end{Bmatrix} \begin{Bmatrix} \text{desk} \\ \text{brother} \end{Bmatrix}$ with
my finger.

## 2. Summary of the Argument

In Section B we dismiss briefly two analyses of genitives that
will not concern us elsewhere. The first proposes that certain
genitives originate in the Determiner (where they end up), while
the second obtains genitives from the subjects of sentences that
are later nominalized. We reject these proposals not because they
are untenable, but because within the framework of this grammar
they are on the whole less satisfactory than the two main sources
discussed here. As a matter of fact it is extremely difficult,
as we shall see, to discuss any of the possible sources of the
genitive, since solid evidence is hard to find.

In the next two sections, C and D, we consider in detail the
two sources from which we derive virtually all genitives: cases,
on a noun in deep structure; and NP's within restrictive relative
clauses. In the first of these sections we show how, once it is
accepted that cases on nouns provide the best analysis for the
source of certain "nominalizations," this analysis provides the
source for a great number of genitives, including those which have
been regarded (e.g. by Fillmore) as inalienable possessives. In
the course of this discussion we develop some--not entirely satis-
factory, it must be admitted--criteria for determining whether a
genitive comes from a deep structure case. At the same time, we
argue that the alienable/inalienable distinction is not relevant.

The question of which cases can appear on nouns, and in particular
which cases yield specific classes of genitives, cannot be settled
with any confidence.  It is discussed in section C, where fairly
strong arguments are given against a "possessive" case.  Moreover,
a large number of the possessives simply cannot come from cases on
nouns, judging by the criteria developed in Section C.  Thus, one
of the main results of that section is to show that there seem to
be grounds for distinguishing two major classes of genitives:  (1)
those from cases and (2) those from relative clauses.  No effort is
made there to demonstrate that it is impossible to find two other
differentiated sources, but it is shown that cases and relative
clauses are very plausible.  However, at the end of this section
we bring up a number of difficulties which this proposal seems
unable to handle completely.

Section D is devoted to an examination of the adequacy of various
relative clauses as the source of genitives not derived from cases.
We separate and consider in detail the claims of relatives with have
and of those containing predicate genitives  (The book that is John's)
and argue that though neither is entirely adequate the latter is more
satisfactory.

The last significant section, E, deals with a number of problems
in the derivation of genitives.  The first two subsections are the
most important.  In these we deal with the origin of postposed geni-
tives and with constraints on the formation of genitives.  The first
of these provides a detailed discussion of Jackendoff's proposal to
obtain postposed genitives from a partitive structure, and shows that
although plausible, his argument is inadequate.  An alternative
derivation is proposed.  The discussion of constraints on forming
genitives (either from cases or relative clauses) is entirely depen-
dent on this proposal.

Thus, the major problems connected with the genitive are all
discussed at some stage in this paper, though, as we pointed out
earlier, they are necessarily dealt with from the point of view of
the theoretical claims of this grammar and not so much for their own
sake.


B.  The Deep Structure of the Genitive:  Rejected Analyses

There are at least four quite distinct structures that might
be proposed as underlying forms for various genitives:  (1) elements
within the deep structure determiner, (2) subjects (and objects) of
sentences to be nominalized, (3) cases on the noun, and (4) relative
clauses.

In the course of arguing for our basic position (in INTRO), we used examples showing that some genitives arise from the third source, viz. from a case on the head noun. It has generally been assumed (e.g. in Lees (1960a), Lees and Klima (1963), Chomsky (1965, 1967) and Fillmore (1967)) that relative clauses provide the source of some of the genitives of possession. Smith (1964) argued specifically for this, and it seems that we need to postulate a relative clause source for some genitives. We discuss these two sources in Sections C and D respectively. Here we are concerned with alternatives (1) and (2) above, which in general we reject.

Only in the case of gerunds (e.g. <u>John's playing the piano</u>) do we derive genitives from a deep structure case on a verb that is related to the surface head noun. Genitives in such constructions have an entirely different derivation from all other genitives, in our grammar. This is a natural consequence of the lexicalist approach to nominalization which is justified elsewhere. (See NOM.) The first possibility mentioned above of deriving some genitives within the determiner turns out to be largely a notational variant, within a grammar having deep structure subjects, of derivation from cases on nouns. We discuss, immediately below, each of (1) **and (2)** in that order.

## 1. Deep Structure Determiners

Chomsky (1967) suggested that in some instances genitives might arise within the determiner in deep structure, thus yielding a parallel to the deep structure subjects of sentences related to noun phrases; for example, he would presumably derive <u>the enemy's</u> in (1.d) or <u>the man's</u> in (1.f) and (1.h) in this way.

(1.d) <u>the enemy's</u> destruction of the city
(1.f) <u>the man's</u> receipt of the letter
(1.h) <u>the man's</u> careless driving

Chomsky also suggested obtaining the genitive from within the determiner when it represents the possessor in an inalienable relationship to the thing "possessed." Chomsky's derivations of these genitives contain empirical claims which we must at least meet. Thus, he claims to be able to explain the fact that genitives derived from objects never postpose. Thus: <u>the picture of John</u> ⟹ <u>John's picture</u> ⇸ *<u>the picture of John's (that was taken last week)</u>. Certain peculiarities in the behavior of inalienable possessives (as compared with other possessives) are also accounted for. However, it appears that in so

far as the facts require explanation our derivation is at least as adequate. This we now argue in detail, starting with inalienable possessives and going on to genitives derived from objects.

Primarily Chomsky wishes to account for differences in behavior correlated with the two senses of (12.a), paraphrased roughly by (12.b) and (12.c), where the contexts given at (12.b') and (12.c') largely disambiguate the two readings.

(12) (a)  John's arm
     (b)  an arm that is part of John's body
     (c)  the arm that John happens to have

     (b') John's arm is sore.
     (c') John's arm is badly preserved so he is having difficulty dissecting it.

The deep structures proposed by Chomsky for these two readings can be represented roughly as:

(13.b)
```
            NP
           /  \
        DET    N
         |     |
       John   arm
```

(13.c)
```
                NP
              /    \
           DET      N
          /   \     |
       ART     S    arm
        |    /  \
       the  John has an arm
```
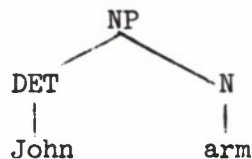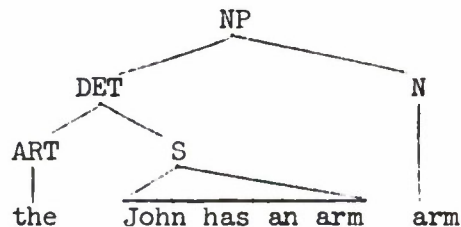
Chomsky's proposal follows closely the suggestions made in Fillmore (1967a), where, however, inalienable possession is represented by a Dative on the noun (while alienable possession is a Dative within the relative clause). The possessor is moved into the determiner by a later rule under Fillmore's proposal. Obviously the Fillmore and Chomsky proposals for distinguishing inalienable possession have much in common. It will be convenient to deal with such common factors when considering the justification for deriving genitives from both relative clauses and cases on nouns (Sections (3) and (4) below).

Here we are concerned only with the <u>differences</u> between deriving such genitives from DET and obtaining them from cases on nouns. Clearly our grammar favors the latter choice since (see INTRO) the $\bar{X}$ convention represents a hypothesis that S and NP have close structural parallels in the base, with surface differences attributed to the varying restrictions on the application of such transformations as Subject Placement. However, this scarcely constitutes an empirical difference between the models.

The only evidence offered by Chomsky for generating certain genitives in the determiner and moving others in (as in <u>the city's destruction by the enemy</u>) turns out to be rather weak. His argument makes use of the fact that (14.a) possesses at least one more reading than (14.b). The latter lacks the reading where the picture is a representation of John, i.e. (14.c).

      (14) (a)  John's picture
           (b)  picture of John's (that is over there)
           (c)  the picture of John

(The relative clause required for (14.b) is irrelevant to the argument.) One way of accounting for the differences in paraphrase is to obtain forms like (14.b) from (14.a) by post-posing the genitive. Chomsky implies that (14.c) starts off as (14.c'), with an indeterminate "subject."

      (14) (c')  someone's picture of John

The determiner is filled by that NP which would be subject in a related active sentence (e.g. <u>someone took a picture of John</u>). Then the passive rule applies optionally, in two parts, to (14.c'). First, the subject is moved out to the right and marked with <u>by</u>, yielding (14.c").

      (14) (c")  the picture of John by someone

Then, as an independent option (optional only for noun heads), the object may be moved to the left yielding (14.a')

      (14) (a')  John's picture by someone

Deletion of the indeterminate <u>by someone</u> by an ungoverned rule that applies also to sentences will yield (14.c) from (14.c") and one reading of (14.a) from (14.a'). One other reading of (14.a) is that where <u>John</u> took the picture. Then it is <u>John</u> that originates

in subject position, (i.e. in the Determiner) like <u>someone's</u> in
(14.c'). Now, if the postposing rule that forms (1<u>4.b) from</u> the
last-mentioned reading of (14.a) is ordered <u>before</u> the Passive
rule that moves <u>John's</u> in to give (14.a'), then there is no way
in which that reading of (14.a) can yield (14.b).

However, such ordering is otherwise unmotivated. The present
grammar for example, has the passive subject placement rule pre-
cede the active one for good reasons (see CASE PLACE), and conse-
quently could make no use of the device.

Furthermore, unless (14.b) and forms like it are produced by
a postposing rule of the sort assumed by Chomsky (but not
independently motivated), the ordering device may be quite unusable.
In fact it has been argued that (14.b) does not arise as a result
of a postposing rule operating on a preposed genitive (for further
details see III.E.1). Jackendoff (1967) has argued that such forms
are obtained from partitive-type constructions, so that (14.b)
would look something like (15) at an earlier stage.

(15)

```
                              NP
          ┌───────────────────┼──────────────────┐
        DET         N                        PREP P
         │          │                    ┌──────┴──────┐
         a        picture              PREP          NP₂
                                         │          ┌──┴──┐
                                        of        DET     N
                                                   │      │
                                                 John's  pictures
```
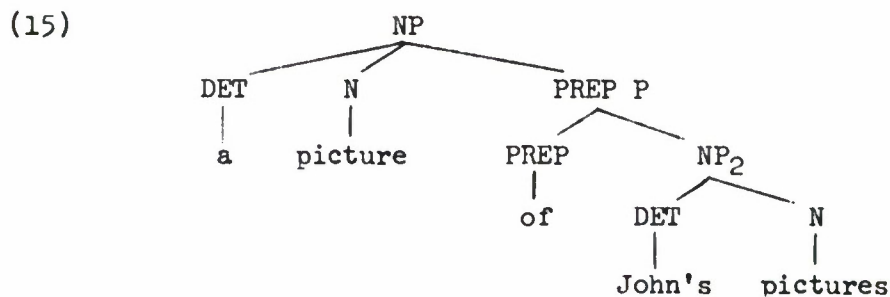
If this is correct, there is no way of ordering or constrain-
ing a cyclical passive rule operating within NP₂ so as to prevent
the formation of <u>John's pictures</u> from, say, <u>the pictures of John</u>
just in case NP₂ appeared within such a structure as <u>NP₁</u>. At this
point it is enough to point out that there appears to be little
immediate advantage in generating some genitives in the determiner
while others start out in object position.

Notice that none of Chomsky's arguments give any grounds for
deriving inalienable possessives within the determiner as such.
Just as long as they are moved into initial position within NP
before his postposing rule he can derive <u>an arm of the man's</u>. In
this respect they are thus in no sense distinguished from alienable
possessives which, although they originate in a relative clause,
must be moved into the preposed genitive position before the post-
posing rule applies.

It is interesting that within this present grammar there may well be semantic arguments for deriving <u>alienable</u> possessives (e.g. <u>John's body</u>) in deep structure determiners, since in such possessives the genitive is clearly not a case on the head noun. We discuss this possibility very briefly toward the end of section D.  But in so far as Chomsky was able to adduce any semantic arguments for his source, those same arguments provide support for deriving the same genitives from cases on the noun in this grammar, leaving the Determiner open as a possible source for other genitives.

2.  Genitives as the Subjects of Nominalized Sentences

We have already pointed out that Lees (1961a) obtains a good number of genitives, including most of those which we attribute to cases on nouns morphologically related to verbs, by marking the subjects of nominalized sentences.  Our arguments against Lees' very general use of transformational derivation for all nominalizations are given above (see INTRO).  It follows from the fact that we do not obtain <u>the enemy's destruction of the city</u> from a sentence, that we cannot adopt his account of the origin of such genitives as <u>the enemy's</u> in that construction or, for that matter, the modification which was suggested by Fillmore (1967).  Genitives, do not, in general, appear to be the subjects of nominalized sentences.

Nevertheless we obtain the genitives in gerunds, such as <u>John's driving the car slowly</u>..., by rule from embedded sentences. (See NOM)  In that case, the nominalizing transformation marks the subject of the sentence as a genitive.  For reasons which are set out in detail in CASE PLACE, it seems inconvenient to set up a single genitive marking rule operating on gerunds as well as on deep structure non-sentential NP's like <u>the enemy's destruction.</u> This has the possible disadvantage of making it quite fortuitous that genitives occur in both the following forms:

(16)  (a)  John's driving the car carefully...
      (b)  John's careful driving of the car...

It may be relatively easy to unify the two distinct derivations (of (16.a) and (16.b)), but within the present grammar, at least, it seems to be necessary to derive the genitives of gerunds in a very different way from all others.

C.  The Deep Structure of Genitives:  Cases and Relative Clauses

We pass now to the main topic of this paper.  In INTRO we argued that nouns take cases.  There we used certain examples like

the enemy's destruction of the city in which a genitive occurs
where the corresponding sentence would have a subject.  Thus it is
quite clear that certain genitives must come from cases on nouns--
the same cases that occur on verbs.  The main question is whether
all genitives (ignoring gerunds--as we do from now on) come from
cases.  The answer to this depends largely upon the criteria used
to distinguish cases, and these criteria are greatly affected by
the fact that there are a good number of nouns which must be
regarded as taking cases but for which the relationship between
case and head differs from that found for verbs.

This section as a whole, in which we explore the behavior of
case-derived genitives, is divided into three main sections.  In
the first we establish the extent of the claim that certain
genitives come from cases.  First we show that there are many nouns
which, on the basis of argument used here (e.g. CASE PLACE) we must
assume to select cases related closely to those selected by verbs.
Then we show how there are other nouns which select cases, too.
We examine in some detail the problem of determining which cases
underlie Part-whole and kinship genitives and though we are unable
to determine what cases are involved, this failure is relatively
unimportant since positive progress is made toward achieving an
understanding of the role of cases on nouns.  In particular, the
alienable/unalienable distinction is shown to be irrelevant to case-
meaning.  In the course of this subsection it is clearly established
that there are some genitives that do not come from cases.

In the second main subsection we show that there are several
apparent problems with the analysis.  The two most serious con-
cern instances where the sharp distinction between case-derived
and other genitives seems to break down.  No altogether satisfactory
solution is given to these problems.  It may be that the most
important contribution of this report is to raise these particular
issues in a fairly manageable form, since the particular theoretical
claims of this grammar must be to some extent judged by the extent
to which these problems can ultimately be handled.

The final section examines again the problem of determining
which cases are involved for kinship and part-whole genitives.
This does not seem to be a highly significant problem, however,
and the last section is very brief.

1.  Distinguishing Case-derived Genitives from "Alienable Possessives"

a.  Genitives Derived from Deep Complements on Nouns

It turns out in fact that there are good arguments, independent of our assumptions, for deriving certain genitives from deep structure complements (of some sort) on nouns, but that others, most notably those genitives that we have called alienable possessives, cannot easily be so derived.  Between these there is an area of considerable obscurity where we find it hard to obtain clear empirical evidence either way.  Most of the rest of this section is devoted to an attempt to provide, whenever possible, arguments for or against deriving various genitives from cases, taking into account both semantic and syntactic considerations.

The strongest independent argument for deriving some genitives from deep structure complements on their nouns depends on the fact that there are genitives which lack a sentential paraphrase.  For example:

> (17) (a)  Chicago's weather
>      (b)  the weather in Chicago
>
>      (c) (i) *the weather that Chicago has
>          (ii) *the weather that is in Chicago
>
>      (d) (i) *Chicago has some weather
>          (ii) *some weather is in Chicago

There are in fact relatively few instances like this, which have no satisfactory sentential paraphrase.  Most are Locative in nature, as is (17), or refer to part-whole relations, e.g. body parts.  Some examples follow.

> (18) (a)  the lake's edge
>      (b) *the edge that the lake has
>      (c) ?the lake has an edge
>      (d) *the edge is to/of the lake
>
> (19) (a)  the man's head
>      (b) *the head that the man has
>      (c) ?the man has a head
>      (d) *the head is to/of the man

(20) (a)  Mary's mother
     (b)  *the mother that Mary has
     (c)  Mary has a mother
     (d)  *the mother is to/of Mary

The force of (18)-(20) is slightly weakened by the fact that the (c) sentences are all more or less satisfactory, especially if an adjective is inserted, thus:

(18) (c')  ?the lake has a muddy edge (cf. the plank has a
                                            straight edge)
(19) (c')  the man has a sore head

Nevertheless, it remains true that there is no obvious sententially derived paraphrase for any of them. Although this may turn out to be a purely superficial fact, resulting from, for example, obligatory reduction to the genitive, we have no independent evidence for this. To assume such an explanation is to beg the question, ignoring the existence of a perfectly satisfactory alternative source and discounting the available evidence provided by the ungrammaticality of putative relative clause sources.

b.  Genitives Derived from Specific Cases on Nouns

There is a large class of nouns like those referred to in INTRO where it is quite clear that specific cases underlie the genitive. Most, but not all, are nominal heads related in some rather direct way in the lexicon to verbs. Almost all, unlike those which we have just been considering, exhibit relations between the head and the dependent cases (some of which form genitives) which are extremely close to the relationship between a related verb and its cases. The following seem fairly representative, the genitives presumably deriving from the indicated cases.

(21) (a)  the enemy's destruction of the city    <u>Agent</u>
     (b)  the herald's proclamation to the city
     (c)  the little boy's singing of the aria

(22) (a)  the city's destruction by the enemy    <u>Neutral</u>
     (b)  the man's picture
     (c)  the train's arrival

(23) (a)  the student's knowledge of music    <u>Dative</u>
     (b)  John's belief that the world is flat
     (c)  his death

For most of these structures, it is true, there are paraphrases that make some use of relative clauses. However, as the following suggest, it is often difficult, and sometimes impossible to find good paraphrases of this form. Where a starred or queried form is given this is because no better paraphrase of this general form has been found.

(21') (a)  the destruction that was wrought by the enemy on the city
      (b)  the proclamation that was made to the city by the herald
      (c)  *the singing of the arias that was done by the boy

(22') (a)  the destruction that was wrought on the city by the enemy
      (b)  ?the murder in which John was killed
      (c)  ?the arrival that was made by the train

(23') (a)  the knowledge of music that the student possessed
      (b)  the belief that John had that the world was flat
      (c)  ?the death that he died

It is difficult to prove conclusively that there is absolutely no possibility of maintaining that the genitives of (21)-(23) are derived from relative clauses. For one thing, there are a considerable number of other relatives available as sources, and it is possible that even those for which we have only been able to provide dubious paraphrases (if any) could be shown to have other more suitable underlying sentences. However it is clear that at present no single general method of obtaining the phrases in question from relative clauses can be proposed. In particular it is quite impossible to obtain them by reducing and preposing copular sentences of the following form, unless we are prepared to postulate ungrammatical and otherwise unmotivated deep structures:

(24) (a) *The destruction (of the city) was by the enemy.
     (b) *the destruction (of the city) that was by the enemy.
                              ⇓
     (c)  the enemy's destruction (of the city)

Nor could any of the genitives of (21)-(23) be derived from copular sentences containing a predicative genitive:

(25) (a) *The destruction (of the city) was the enemy's.
     (b) *the destruction (of the city) that was the enemy's

Thus, while it is not impossible that these genitives come from relative clauses, it is, quite independent of this particular grammar, most unlikely.

There is, of course, the possibility that forms like (21)-(23) are transformationally derived from sentences, in which case, given a deep structure that makes use of cases, the genitive would derive ultimately from a case on the underlying verb, first being moved into subject position. Fillmore (1967a) argues for something like this derivation with the added (and not very well motivated) device of requiring some sort of "identity" between the verb in the deep structure sentence and a non-derived but related no inal between for example destroy and destruction. We will not here argue in detail against such a source for the case-meaning which can be clearly seen in the genitives of (21)-(23) since we have argued elsewhere (INTRO and NOM), as have others (Chomsky (1967) and (essentially) Langendoen (1966.b)), for the existence of deep structure cases on nouns. Given that argument, it is natural to derive the genitives in question directly from such cases occurring on deep structure nouns. In CASE PLACE it is shown that this derivation is indeed quite general and on the whole well motivated for most of these forms, using rules which apply to both sentences and NP's. Thus, in these forms at least it turns out that the rules which prepose the subject of a sentence (whether active or passive) apply under somewhat different conditions to yield genitives.

The examples used so far show that Agent, Dative and (sometimes) Neutral prepose. Whether Instrumental is preposed in deep structure NP's is more problematical. This case does not appear to occur freely on nominal heads anyway, though the -ING OF nominal (:the opening of the door), which we argue (see NOM) is lexically derived, may accept it:

(26) ?the opening of the door with this key

while the following is probably grammatical:

(27)  the destruction of the city with bombs

If the subject placement rules operate alike on the respective verbs and nouns they will yield:

(26') ?this key's opening of the door

(27') ?the bombs' destruction of the city

Allowance has to be made here for the fact that non-animates are almost invariably (see Section C) unacceptable as genitives, under an output condition. But Instrumental only preposes if Agent is absent, preposing then because of the LAST CASE convention. (see CASE PLACE) It is not easy to distinguish Agent from animate Instrumental unless both Agent and Instrumental are present. Thus in (28.a) a trained falcon is presumably an Instrumental; in (28.b) it is not clear what case it is in.

(28) (a) He killed the rabbits with a trained falcon.
(b) A trained falcon killed the rabbits.

(29) The trained falcon's killing of the rabbits...

We take it, however, that (28.b) is ambiguous (between Agent and Instrumental) in subject position, and that the nominal (29) is likewise. If so, Instrumental can presumably prepose.

At first blush, Locative cases on nouns do not seem in general to prepose to form genitives. It has been argued that the underlined phrase in each of the following is a deep structure complement on the noun (cf. Chomsky (1967) and Langendoen (1966.b)) and there are obviously prima facie grounds for regarding them as Locative cases on the verbs. As (31) shows, none of these prepose however.

(30) (a) The house in the woods
(b) visibility at the airport
(c) the intensity of light at a point

(31) (a) *the woods' house
(b) *the airport's visibility
(c) *a point's intensity of light

It might be suggested that the ungrammaticality of (31.a-c) could be ascribed to the output condition already mentioned, which generally rejects inanimate NP's in genitives. However, such a suggestion runs into serious difficulties.

There is a class of nouns relating to phenomena and properties which in a very broad sense may be called "meteorological;

these appear to take Locative cases, and to prepose them.  Example (17), repeated here, is one instance of this.  Other examples follow.

(17) (a)  Chicago's weather
     (b)  the weather in Chicago

(32) (a)  the room's temperature
     (b)  the temperature of the room

(33) (a)  the city's cloud-blanket
     (b)  the cloud-blanket over the city

Clearly (17) and (32)-(33) are Locatives on Nouns.  They prepose.  Later we shall look at examples like the water's edge, ?the building's height which also seem to be Locatives, also prepose and, like (17), (32) and (33) ignore the otherwise general condition restricting genitive preposing to animates.  Thus, it looks as though preposing should be restricted to certain Locatives on nouns just as it is restricted for verbs.

We observed in CASE PLACE that it is rare for verbs to allow a Locative subject, and nominals related to verbs apparently never do so.  For example:

(34) (a)  *The airport arrived (?) John.
     (b)  *The airport's arrival of John.

If (35.a) is grammatical and not a gerund formed from (35.b) but a related derived nominal, it is an instance of a genitive formed by the operation of SUBJECT PLACEMENT rules on Locative in parallel verbal and nominal constructions.  But the example is dubious on both counts.

(35) (a) ?the pool's emptying of water
     (b)  The pool emptied of water.

There are no clear instances of such Locatives preposing.

What there seems to be is some sort of redundancy rule operating on meteorological nouns, part-whole words like edge, measure words like height, to make them accept Locative subjects (genitives).  Notice that this would tie in with Fillmore's account of the relationship between the room is hot and It is hot in the room, where

hot can allow the Locative to prepose (cf. also Langendoen (1966.b)).
This makes them quite similar too to verbs like load and fill
which are specially marked to allow the Locative to move into
subject position, even though, as we remarked above (see example
(35)) there are no clear instances of parallel nouns and verbs
allowing preposing.

c.    The Notion of Case in Relation to Nominal Heads

    The preceding discussion of Locatives raises an interesting
problem which is in a sense fundamental to this entire paper.  What
is it that distinguishes a case from other kinds of complements
on a head?  Fillmore (1967a ) discusses the question in a general
way in relation to verbs but at the one point where he suggests
that cases may appear on certain nouns does not consider whether
the notion of case can conveniently be extended to nouns.  We
merely outline some of the problems here.  From time to time we
shall return to it, especially when dealing with possessives
and above all in Section C.1.e, where we deal with the
suggested distinction between alienable and inalienable possessives.

    It is essential to recognize that the notion of case which
has been developed within transformational theory, especially by
Fillmore, appears to be most centrally concerned with the sub-
categorical, selectional and other semantic behavior of ordinary
lexical verbs so that as soon as one attempts to extend the notion
to apply also to nouns at the head of a construction some sort of
modifications, on at least subsidiary criteria, seem to be required.
The head nouns of (21)-(23) present little major problem for this
grammar.  There are minor difficulties in maintaining that S and
NP are alike in the base, where a noun and the related verbs fail
to act alike (the noun sometimes taking a restricted set of cases,
for example) but where there are pairs like destruction-destroy,
proclamation-proclaim, death-die, an NP which is Agent, Neutral or
Dative on the noun appears to be in essentially the same relation
to the head and to other NP's in the construction as it would be
if Agent, etc., on the verb.  The same core of meaning is involved;
on the whole, the same selectional restrictions apply in the
enemy's destruction of... and the enemy destroyed....

    This relationship between the accepted, reasonably well
established cases and verbal heads is brought out by considering
the criteria used to distinguish one case from another.  As we
point out in LEX, these are far from satisfactory; nevertheless
Agent, for example, is semantically distinguished from Dative by

the degree to which the entity referred to by the NP under the case node is responsible for initiating and carrying out some action characterized by the verbal head. (There are a number of syntactic consequences which need not concern us here.) If the verb involves no action at all, like know, there will be no Agent in the case frame, only Dative. On the other hand, a verb like give selects both these cases since the notion of giving necessarily involves an active giver and a relatively passive receiver. There appears to be a very close relationship still little understood between aspects of the central, essential meaning of a verb and the case frame it selects.

For the present it is enough to show that extending the notion of case to apply to the complements of nouns in the base makes it necessary that there be aspects of the meaning of nouns, like those relations in the meaning of the verb give which determine the case framework selected by the head of a construction. Nouns like destruction offer few serious difficulties, but for head nouns like weather, edge, head, mother, house, etc. (in examples (17)-(20), (30)-(33)) it is necessary to determine whether the notion of case can have any meaning comparable to that which it has in rela- tion to verbs, and, if so, whether the cases that occur on nouns are limited to those that occur on verbs. It is hard to see how a noun like table or dog could be analyzed as possessing relational aspects of meaning in any way comparable to that found for verbs. Moreover, although it may be possible to isolate appropriate aspects of the meaning of Father so that John in John's father comes from a deep structure case on the head, it is by no means obvious that the case involved is one that even occurs on verbs.

Let us re-examine the putative Locatives of (30) and (31) in the light of these observations. First of all consider verbs like load or arrive which select a Locative case. In both there is some specific aspect of the meaning of the verb which requires a loca- tion. Loading cannot be carried out without some place onto (into) which things are loaded; in arriving it is necessary that one reach a place--which may or may not be mentioned. Directly related to this, there is probably an optional Locative on the nominal arrival, as on arrive:

(36) (a)  John arrived at the airport.
     (b)  John's arrival at the airport

The question is whether in the woods in (30.a) is a Locative case at all. If, instead, it is a locative adverb, this alone would explain why it failed to prepose, and we could make Locatives on

NP's generally preposable. (30.a) was one of the paradigm examples of complements within an NP leading to Chomsky's formulation of the x̄ convention. We are concerned with the phrase house in the woods as it occurs in

     (37)  John's house in the woods

Chomsky argues that this cannot be derived from the ungrammatical (in most dialects)

     (38)  *John's house that is in the woods

He argues that there are, in effect, two sources for (30.a), the house in the woods, one a relative the house that is in the woods, the other a phrase structure expansion of NP that includes complements. Only the latter derivation can yield (37). If we paraphrase the central meaning of house by "something to live in" then the two meanings of (30.a) seem to be, vaguely:

     (39) (a)  something to live in that is in the woods (Relative)
         (b)  something to live in the woods in  (NP complement)

The question is whether the Locative, in the woods, is a case on the noun house when it is a complement on it. There is an alternative. Certain adverbs clearly occur in noun phrases, as in (40).

     (40) (a)  John's arrival yesterday
         (b)  *John's arrival which was yesterday

It is quite possible that the Locative of (30.a) occurs outside the "proposition" (i.e. Nominal) of NP, as an adverb. The possibility that Locatives occur in more than one place in the phrase structure has often been remarked on—for example by Chomsky (1965) and Fillmore (1967a). Whether this represents an example of a Locative occurring outside the proposition (or Nominal) like, perhaps, the second Locative in "He keeps his money in the bank in Chicago," or is selected as a case by the head of the construction, depends on how it relates to the central meaning of house. It seems best to leave this as an open question, and although, for visibility and intensity it is at least as likely as for house, that the Locatives are adverbial we shall not propose formal criteria at this point for distinguishing this class. Consequently we still require nouns to be specially marked for Locative preposing just as verbs are.

However, it was not our prime purpose in this section to pro-
vide a solution to the Locative problem.  We wanted to introduce
in a general way the question of what it means for a deep structure
complement to be a case.

d.  (i)  Possessives are not Derived from a Special Dative

When we turn to the problem of genitives appearing on "pure"
nouns (i.e. nouns relatively unrelated to verbs) it becomes more
difficult to see how far deep cases underlie them--they are, of
course, roughly identifiable with the "possessives" tentatively
set out in example (10).  There we referred to forms like:

(41) (a)  John's hat
     (b)  the man's arm
     (c)  the farmer's daughter
     (d)  that hotel's entrance

Although it is not necessary that all these come from a single
source in deep structure, that was almost certainly assumed by
transformational grammarians at one time, when a relative clause
containing have seemed to provide a reasonable source for virtually
all "possessives."  Smith (1964), for example, displays no aware-
ness of any need to distinguish different kinds of possessive.
Although, as we have argued above, it is impossible to derive all
such genitives from relative clauses, there is still the possi-
bility that they all derive from a single case, occurring on each
of the head nouns of (41).  We shall very soon reject this possi-
bility, but it is instructive to see how far it will take us.

If we take into account only such possessives as (41.a-d) it
seems reasonable, at first, to postulate a single source, the
most likely case being the Dative.  We might try to construct an
argument for deriving all possessives from that case, in something
like the following way.  First of all, whatever semantic relation
holds between genitive and head in (41.a-d) appears to hold be-
tween surface subject and predicate NP in the parallel forms of
(42).  Any strangeness in the simple forms of (42.b) and (42.d)
would be attributable to the fact that in these we are directly
asserting what is in general assumed to be the case.  The presence
of a single main verb, have, in all these sentences would seem to
argue for deriving all the genitives of (41) (subjects in 42) from
one case.

(42) (a)  John has a hat.
     (b) ?The man has an arm.  (The man has a sore arm.)
     (c)  The farmer has a daughter.
     (d) ?The hotel has an entrance.  (The hotel has a
                                          fine entrance.)

We might then notice how (42.a) is able to appear in (43.b)
a paraphrase, admittedly rather clumsy, of a sentence with <u>give</u>
as the main verb.

(43) (a)  Bill gave John a hat.
     (b) ?Bill brought it about that John had a hat.

<u>John</u> in (43.a) must be a Dative, and the same basic semantic rela-
tionships seem to hold between <u>John</u>, <u>Bill</u>, <u>hat</u> and whatever verbal
elements are present, in both sentences.  This constitutes a <u>prima
facie</u> argument for analyzing <u>John</u> in (42.a) as a deep structure
Dative.  Further support for this analysis, and a possible way of
extending it to the other genitives of (41), is provided by the
following, in which appropriate NP's are more or less successfully
associated with the characteristically Dative preposition <u>to</u> in
sentences that seem to preserve the same essential semantic rela-
tions as were found in (41) and (42).

(44) (a)  The hat belongs <u>to</u> John.
     (b) ?The arm belongs <u>to</u> the man.
     (c)??The daughter belongs <u>to</u> the farmer.
     (c') That little girl belongs <u>to</u> the lady sitting over
             there in a red dress.
   (c'') She was always a good daughter <u>to</u> her old father.
     (d)??The entrance belongs <u>to</u> that hotel.
     (d') This entrance belongs <u>to</u> the hotel next door.
   (d'') This is the entrance <u>to</u> the hotel.

However, even on the basis of the limited data given in (41)-
(44) it turns out to be quite impossible to argue effectively for
a single deep structure case.  In the first place, it is certainly
wrong to attribute too much significance to the appearance of
<u>have</u> in all the sentences of (42).  <u>Have</u> is associated at least
as strongly with Locatives as with Datives, as in the following,
from Fillmore (1967).

(45) (a)  There are many toys in the box.  [85]
     (b)  The box has many toys in it.  [86]

Cf. also:

(46) (a) That bicycle has a bell.
     (b) There's a bell on that bicycle.

(47) (a) That door has a key.
     (b) There's a key to that door.

(48) (a) That door has a lock.
     (b) There's a lock on that door.

Fillmore and Bach (1967b) have argued that _have_ in such forms
represents a late insertion, and though their arguments for a
completely empty V in deep structure are not fully convincing,
their data seems to provide abundant evidence that the surface
subject of _have_ does not necessarily come from a Dative--or any
other single case selected by a verb.

Moreover, one of the main criteria for a Dative case in this
grammar is that the dominated NP be animate.  (See LEX and
Fillmore (1967a).)  In the verbs this seems to be quite satis-
factory, and it would certainly be hard to justify allowing an
inanimate NP like _that hotel_ in (41.d) to fall under the Dative
just in case it occurred under a noun head, or in the underlying
structure that made it surface subject of _have_.  Thus, in order to
derive just the possessives of (41) from a single case it seems
that we should have to posit some case other than Dative.

We have noticed already that the surface subject of _have_ (with
which possessives clearly have much in common even if they are not
derived from it) seems sometimes to be a Dative, sometimes a Loca-
tive, likewise, the preposition _to_, which occurs in (44.a-d"), is
found with both cases.  Lyons (1967) has argued that Dative and
Locative must be identified at a deeper level, distinguished largely
by whether the dominated NP is animate or not.  Thus, this particu-
lar distinction may disappear on closer investigation of the issues
involved.  Thus far, then, there seems to be no clear evidence
against obtaining all possessives from some sort of Dative/Locative
case.

However, when we look at the head nouns more closely, we dis-
cover a number of distinct semantic classes each of which deter-
mines in a different way the possible semantic relations holding
between head and genitive.  As we observed in the last section,
the relation between the head of a construction and an NP under a
dependent case appears to be highly relevant to determining what

case is involved. We must examine the semantic classes into which possessives can be divided before deciding whether to assign all of them a single deep structure case as source.

d. (ii) Two Semantically Distinct Classes: Kinship and Part-Whole Possessives

If possessives (as so far separated from other genitives) bear different semantic relations to the heads of their construc- tions, it is highly possible that they have different sources-- not all of which need be cases. This much seems clear from the discussion of case-relations in subsection 3 above. The following classes, which we make no attempt to justify in detail here, suggest some of the possibilities. It should not be assumed that the classification is exhaustive or that the genitives of each class have a single source though on the whole that does seem to be so.

(49) <u>Kinship terms</u>

 (a) the man's father
 (b) John's sister
 (c) the colt's dam
 (d) his child
 (e) someone's parents

(50) <u>Part-whole relations</u>

 (i) <u>Animate genitive</u> (Body-parts)

 (a) the man's leg
 (b) John's heart
 (c) this centipede's toenails
 (d) its paw
 (e) someone's eyebrows

 (ii) <u>Inanimate genitive</u>

 (f) ?the saucepan's handle (the handle of the saucepan)
 (g) ?the book's pages (the pages of the book)
 (h) ??something's wheel (the wheel of something)
 (i) ?the chair's leg (the leg of the chair)
 (j) that hotel's entrance (the entrance to/of that hotel)

A minor point of clarification is necessary. Examples (50.f-j) range from near-acceptability to ungrammaticality with considerable

variation from speaker to speaker. There is a close relationship between genitives and NP of NP (no genitive marker), and a condition, already mentioned, tends to exclude genitives that dominate inanimate NP's. For the present discussion we shall assume that genitives are generated for (50.f-j). We certainly find sentences containing definite pronouns that must have come from such forms: "The book had lost nearly all its pages;" "I want that saucepan because its handle is a little longer." We shall return to this question in E.2, E.3, but for the moment assume that (50.f-j) are generated as genitives and are rejected by an independent constraint.

In all the examples of (49) and (50) it will be observed that the semantic relationship between genitive and head is very closely determined and that it is the meaning of the head noun which governs that relation. Although the nature of the relation differs in many respects from the relationship between a verb and cases dependent on it, nevertheless this dependence of the relation on central aspects of the meaning of the head is reminiscent of the typical case relations exhibited between give and its dependent NP's. Thus, in (49.a), the man's father, the referents of the man and father are associated specifically in that the relation "father" connects them appropriately: that the second is father of the first. Moreover, it is only by virtue of some such relationship holding that it becomes appropriate to use the term father. Fathers possess, in fact, no defining properties aside from this relationship to their progeny; and only references to the latter may occur in a genitive on (appropriate uses of) the term father.

The relationship holding between body part nouns (50.a-e) and their genitives is not dependent in quite the same way. Nevertheless there is one reading of all these for which that relationship is fully determined by the meaning of the head. Recall the ambiguity of (12.a) repeated below along with (12.b,c) representing the two intended readings.

(12) (a)  John's arm
     (b)  the arm that is part of John's body
     (c)  the arm that John happens  to have

For the moment we are concerned only with the reading of (12.a) corresponding to (12.b). The only relevant relationship in this case is that of "being an arm." John and the arm in question are

related simply in that the latter is an appendage to his body, of such a sort that it can be called an arm.  This is directly comparable to the relation between the man and father in (49.a) except that arms have defining (or other?) characteristics which enable one to isolate them somewhat independently of bodies.  This difference, irrelevant to the present discussion, is characteristic also of the inanimate part-whole genitives (50.f-j) which in all relevant respects are like the body-part genitives.  Thus, the relationship between the book and pages is simply that the latter are the pages that make up the former.  Once again, as for arms, (and unlike fathers) pages are independently definable and recognisable.  It turns out in fact that there is a class of purely relational head nouns, taking inanimate genitives, which can be defined only by the relation they bear to the genitive.  For example:

(51) (a)  the mountain's top  (the top of the mountain)
     (b)  the plank's (smoothest) edge  (the (smoothest) edge of the plank)
     (c)  the journey's end  (the end of the journey)
     (d)  ?a cube's surface  (the surface of a cube)
     (e)  ?that room's corners  (the corners of that room)

Thus the kinship terms and the terms for parts (body-parts, and parts of inanimates, including these purely relational terms) are alike in that the genitive relation is dependent in specific ways on the meaning of the head.  Before considering briefly what cases may underlie such genitives it is necessary to show more clearly what is involved, by contrasting them with the genitives of alienable possession.

d.  (iii)  The Genitive of Alienable Possession--Not Semantically a Case

(52)        Alienable Possession

     (a)  John's hat
     (b)  Peter's team
     (c)  his horse
     (d)  the dog's kennel
     (e)  someone's book

In the examples given immediately above, the relationship between genitive and head is not (as it was for all the case-derived genitives so far discussed) dependent on the meaning of the head, and may often vary considerably, or be subject to considerable indeterminacy.  In so far as that is true it becomes, according to the discussion of the nature of case relations in subsection (3) above, relatively unlikely that these genitives come from cases.

Three examples, from (52.a-e), will help to show how far it is true that the relationship between genitive and head is relatively free for these constructions.

Peter's team,(52.b), may be a team owned by Peter, it may equally well be one that he regularly plays for, is presently playing for, supports, has just favored in an argument, or has bet ten cents on. His horse, (52.c), may refer to a horse that he owns, one he has borrowed or hired, has been trying to catch for some time, or intends to buy or hire. It may be one he often rides, is riding or wants to ride. He may have drawn the horse in a sweepstake. There are still places where it could be the horse which he, as a farm laborer, uses in the fields. The relation between someone and book in (52.e) is, to at least the same extent, underdetermined by the meaning of book. At most, the meaning of book (and what we know about books from various sources) sets vague limits to the association. The person in question may own or have borrowed the book. He may simply have it in his hand, or he may have been assigned the task of reporting on, summarising or attacking the book. (Under the present analysis, if he wrote the book then the genitive comes from a case. There is more discussion of that source below.) In none of these three examples does the genitive NP fill a "place" in some aspect of the meaning of the head. Instead, in all, there is some sort of vaguely associative relation holding between genitive and head, so that the referent of the latter "belongs" (in the very vaguest sense of that word) to the referent of the genitive. Since this depends so little on the meaning of the head, there is no prima facie semantic motivation for setting up a deep structure case relation between them, but rather the semantic evidence runs against this.

d. (iv) Syntactic Arguments against a Possessive Case

a. From "Picture" Nouns

In addition to the fact that alienable possessives like (52.a-e) fail to behave semantically like forms derived from cases, there are syntactic arguments against a "Possessive" case--whether this is identified with the Dative or set up as a special case occurring only on nouns. The first set of arguments is quite general but depends on "picture" nouns like picture, book, statue--and unfortunately the analysis is still unclear in important ways. The second argument (in subsection 7.b) is specifically against regarding postposed genitives as in "a book of John's" as a case. Since there is no other candidate for the surface form of any "Possessive" case this second argument is derivatively quite general.

In the first place, the rule preposing the putative case to form a genitive would have to be obligatory. This rule would, of course, be one of the Subject Placement rules (or related to them), but for nouns those rules are otherwise optional. In various environments the preposition proper to a case has to be changed to of, if it is not preposed, but there is always at least that option of leaving the case out to the right of the head. Compare:

(53) Alienable possessives

(a) *the book $\left\{\begin{array}{c}of\\to\end{array}\right\}$ John ( $\overset{\text{oblig.}}{\Longrightarrow}$ John's book)

(b) *the car $\left\{\begin{array}{c}of\\to\end{array}\right\}$ my friend ( $\overset{\text{oblig.}}{\Longrightarrow}$ my friend's car)

(54) Cases

(a) the book by Chomsky ( $\overset{\text{opt}}{\Longrightarrow}$ Chomsky's book)

(b) the arrival $\left\{\begin{array}{c}of\\*to\\*by\end{array}\right\}$ the cop ( $\overset{\text{opt}}{\Longrightarrow}$ the cop's arrival)

If, as we have been assuming, the "picture" nouns like book, portrait, statue take cases (for example an Agent in (54.a)) which can prepose to form genitives, then, since these nouns can occur with Agent and "Possessive" cases present (for they can represent at once both concrete and abstract entities), it is necessary at least to modify the subject placement rule so that this "Possessive" case moves into genitive (i.e. subject) position in preference to Agent, to yield:

(55) (a) John's book by Mailer
NOT (b) *Mailer's book $\left\{\begin{array}{c}of\\to\end{array}\right\}$ John

In fact, even this ordering would not be enough to obtain the right output. There would have to be a separate rule distinct from both Active Subject Placement and Passive Subject Placement, which obligatorily preposed the "Possessive" case. In particular, this rule could not be a sub-rule of the Passive one, since the latter operates on objectivalized NP's only, and we must allow my father in the following, after undergoing objectivalization, to move by Passive Subject Placement into the genitive (56.b).

(56) (a)  the portrait of my father
     (b)  my father's portrait

However, if <u>John</u> is the possessor of this picture, only (57.a) is possible, not (57.b).

(57) (a)  John's portrait of my father

     (b)  *my father's portrait $\begin{Bmatrix} \text{of} \\ \text{to} \end{Bmatrix}$ John

Finally, in a structure like (58), and in fact for all alienable possessives, it seems that there is a major I.C. break between the genitive, <u>the metropolitan museum's</u>, and the rest of the construction. This is not so for (59), and case-derived genitives in general, as far as we can determine.

(58)  the metropolitan museum's portrait of a duchess
      by Rembrandt.

(59)  Rembrandt's portrait of a duchess

This last piece of evidence is based on superficial data and is not altogether reliable. However, the earlier evidence makes it seem most unlikely that a deep structure case underlies alienable possessives and we must assume therefore that they are derived from some other source.

b.  From Postposed Genitives

The arguments given in subsection (7.b) makes it unlikely that there will be any "possessive" case. However, most of the examples relevant to that argument depend on analysing the "picture" nouns as selecting ordinary cases.     We shall see that there is at least some doubt about the correctness of that assumption. For all other nouns the main syntactic objection to postulating a case origin for possessives is the lack of an overt source, and thus the need to introduce obligatory preposing. It might seem possible to overcome both objections by regarding the "postposed genitive <u>of NP's</u> as immediately derived from the underlying case form without preposing. Then both (60.a) and (60.b) would have failed to undergo preposing, while (61.c) would ambiguously result from the operation of a Subject Placement rule on such forms as (60.a,b).

(60) (a)  A book by Mailer        [Agent]
     (b)  a book of Mailer's      ["Possessive"]
              ⇓
     (c)  Mailer's book           [Ambiguous]

There are serious objections to this proposal.  In the first place, it would require two quite different accounts of postposed genitives involving two unrelated sets of conditions accounting for the same distribution of surface forms.  Secondly, the "Possessive" case would, as a result of these conditions behave quite unlike other cases in at least two important respects.  Notice also that the general semantic objection to deriving alienable possessives from a case put forward in C.1.d(iii) above, would apply, of course, to this particular representation of the "possessive case."  The semantic argument is not further reviewed here, but both of the syntactic ones are.

The first requires a somewhat complex argument, dependent in part on the analysis of postposed genitives made in Section E.1. We take it as well established that within this grammar certain genitives come from cases; for example the enemy's in "The enemy's destruction of the city."  The genitive is formed by preposing a case into the Determiner.  (See C.1-b above and CASE PLACE))  But some of these genitives formed by preposing a case can then appear as postposed genitives, to the right of the head:

(61) (a)  a proposal of the president's to end the war in
              Vietnam.
     (b)  all the most recent stories of his that I have read
     (c)  those eyes of Lucinda's!

There are two plausible ways of obtaining such postposed genitives:  by deleting elements in a partitive construction (so that (61.a) would come from, roughly, a proposal of the president's proposals...), or by postposing a preposed genitive from its position in something like a [the president's] proposal.  In Section E.1, we argue for the second of these derivations.  For the moment it is irrelevant, however, which is correct, since the important point is that when the genitive is formed from a case, it is initially made into a preposed genitive first.  On this, rules must operate to form the postposed genitives of (61.a-c).

Now, all postposed genitives, whether they represent alienable possession or obviously come from cases are subject to at least one constraint  in common:  they cannot occur with the definite article unless there is also a relative clause present.  Thus, although

(61.a-c) are grammatical, none of the following are, where (62.d-f)
are understood as ordinary alienable possessives.

(62) (a) *The proposal of the president's
     (b) *the stories of his
     (c) *the eyes of Lucinda's

     (d) *the books of mine
     (e) *the house of Peter's
     (f) *the chair of my father's

It is a fairly straightforward matter to prevent (62.a-c) from
being derived from preposed genitives.  Several possibilities are
discussed in Section E.  A single set of rather natural constraints
on the appropriate rules will achieve the right effect.  But if
(62.e-f) are themselves cases it is impossible (as far as we can
see) to block these in anything like the same way.

    In fact (62.e-f) can only be blocked by either (1) preventing
the possessive case from appearing in a definite NP with no restrictive
relative, or (2) forcing the possessive case to go through the pre-
posing (subject placement) rule just in case it was contained in a
Definite NP having no relative.  Thus (62.d-f) would be avoided in
the base, or turned into <u>my books</u>, <u>Peter's house</u>, <u>my father's chair</u>,
respectively by making the preposing (subject placement) rule
obligatory.  The first alternative is not worth further discussion.
We have no evidence whatever for any similar restriction on the
generation of cases on deep structure nouns.  The second way of
avoiding the objectionable forms is only just a little less objec-
tionable.  Like the first, it would separate the "Possessive" from
all other cases since forms like the following are perfectly
acceptable yet break the condition that would have to be imposed
on "Possessives":

(63) (a)  the arm of the man
     (b)  the distruction of the city
     (c)  the attack by the cavalry
     (d)  the books by Iris Murdoch

Although this would separate the "Possessive" from all other cases
it is conceivable that motivation could be found for turning an
optional rule into an obligatory one--though it is important to
remember that the facts could be easily accounted for in a completely
general fashion if the postposed genitives of alienable possession
came from preposed genitives like all others do.

The second constraint that would have to be imposed on the "Possessive" case is needed to avoid forms like

(64) *Mailer's novels of John's

and instead obtain, for example

(65) (a) John's novels by Mailer
(b) the novels of his by Mailer that Bill was talking about

though not

(c) *the novels of John's by Mailer

It was pointed out above (p. 31), that if there was a "Possessive" case it would have to prepose rather than the Agentive case if both were present on a noun, thus necessarily getting (65.a) rather than any other output. At that stage we were not considering any overt "case" form for the "Possessive." Now that we are, however, the conditions on preposing the "Possessive" case become highly unsatisfactory. For example, if any case preposed it would have to be the "Possessive." That would prevent (64). But notice that this condition would have to be over-ridden by the one discussed just above: if the top NP was definite yet contained no restrictive relative, the "Possessive" could not prepose. That would prevent (65.c). The price, however, seems unreasonable.

Notice that Jackendoff (1967) has a number of arguments directed against essentially the same position as that which we are in the process of rejecting. They do not carry over immediately to this discussion because of important differences in the rest of the grammars.

e. Alienable and Inalienable Possessives

In Section C.2 above we showed that certain genitives come from the deep structure cases generated on nouns by this grammar. In the sections after that we have argued that, in the light of the semantics of "case-hood"--discussed in C.3--and for independent syntactic reasons, there are some genitives which cannot be naturally derived from cases. We have thus made a fundamental distinction within the class of nouns which have no case structure immediately

relatable to cases on verbs.  Some, like father, entrance seem to
select cases in the way that verbs do--though we have not yet
determined what cases are involved.  Others, like hat and kennel for
example, do not.  The genitives which occur on them come, presumably
either from adverbs (a possibility which we shall not consider in
detail here) or relative clauses, which we discuss in the next
section.  As was implied above, there are some nouns, like arm,
which form genitives in both these classes.  Thus (12.a), John's
arm, is ambiguous.  Arm may take cases, or enter into the (alienable)
possessive construction.  Fillmore (1967a) and Chomsky (1967 ) both
attributed this ambiguity to a syntactic distinction between alien-
able and inalienable possession.  It therefore becomes relevant to
ask how far the distinctions which they have made (the making of
which in fact occupies a large proportion of the current litera-
ture on genitives) represent a genuine syntactic distinction in
English.  We noted earlier that the notion of case developed by
Fillmore was particularly concerned with NP's dependent on verbs.
We did not mention there that Fillmore himself extended the notion
of case to include just those nouns which represented inalienable
possession  so that he argued for a Dative case on the noun arm.
On this, the characteristic "inalienable" behavior could be made
to depend.  Chomsky, in turn, tried to extend the notion arguing
that in some way the enemy and destruction in the enemy's destruc-
tion of the city was "inalienable," just like John and arm in the
sense of John's arm where the arm is a body part; and, further,
that this intuitive "inalienability" could naturally be represented
in the syntax by generating the respective genitives in the deter-
miner of the head rather than later moving them in.  Neither of
these arguments is highly persuasive.  Chomsky's rather fanciful
and otherwise unmotivated assumptions about the grammatical repre-
sentation of inalienability allow him to account for the fact that
a picture of John's can never be a paraphrase of a picture of John
(where the picture shows John).  But this is achieved by a trick of
ordering which in turn depends on obtaining of John's by a post-
posing rule and moreover fails to account in any way for the fact
that one of John's pictures lacks the sense in which John's picture
is a picture showing John.

In fact, there is no reason whatever for associating the
"inalienability" of any relation with a syntactic structure of
this sort.  There is no more reason for supposing that in-
alienability is associated with cases generated on the head in the
base, rather than with NP's introduced into a Determiner from a
relative clause.  The examples used by Fillmore suggest that what

may be important in setting off nouns like father from others is that they have an obligatory complement in the base. There is something strange about a sentence like (66) while (67) may have undergone deletion of some sort.

(66) *A father was walking down the street.

(67) The father walked ahead, a little apart from the rest of his family.

It may very well be that those nouns which require some complement in the base all obligatorily select cases as a result of their semantic make-up, though there is no a-priori reason for assuming this, rather than that they are obligatorily modified by a restrictive relative, for example. Fillmore cites "louse" in Arapaho as an inalienable--it is at least as likely that this word has an obligatory restrictive relative as that it is semantically so different in that language that it is capable of selecting a specific case.

Notice that although friend and secretary take cases, there is nothing inalienable in the relationship between John and his friend or secretary in John's friend, John's secretary; the important characteristic of these genitives is simply that the relationship in question in each is fully determined by the head. Furthermore, as the following examples show, secretary along with a number of other nouns selecting cases (all those below come from (49) and (50)) do not obligatorily select them.

(68) (a) As I reached the office a secretary emerged carrying a pile of papers.
(b) Those legs can be carved from various kinds of wood depending on the design.
(c) I don't know where that handle came from.
(d) All I could see in the back of the police truck was a lot of arms and legs.

Probably the extent to which cases are obligatory on nouns is related to the possibility of recognizing the objects named, independently of the defining relationship which is represented by a case, but we are not concerned with that here.

The point is that the phenomena described by Chomsky and Fillmore under the designation of "inalienability" do not correlate with any independently definable criteria so that their observations do not achieve any explanatory adequacy. The distinct syntactic behavior on the part of inalienables, observed by both Chomsky and Fillmore may seem to demand a separate syntactic class of inalienable possessives. However, the ambiguity of (12.a), John's arm, can be represented by deriving it from both (1) a case and (2) whatever source yields the "alienable" possessives. Moreover, the apparent differences in syntactic behavior of these two senses, observed by Chomsky and Fillmore, turn out to be unrelated both to case and to semantically defined "inalienability."

Take the ambiguity of the following sentence, first discussed by Ross (1967).

(69)  John broke his arm and so did Mary.  [Chomsky: 33]

The interpretation which is hard to account for is that in which Mary broke her own arm, rather than assisting in some way in the breaking of John's. The problem is that material deleted to make way for so must apparently include her arm, but then her is not formally identical with anything remaining in (69). Chomsky claims that this interpretation is only possible if the arms that John and Mary break are parts of their own bodies and that in such structures inalienable genitives might be generated with dummy NP's in the determiner, features later being copied in. Then the source of (69) would be something like (70).

(70)  John broke Δ's arm and Mary broke Δ's arm.

Assuming that the rule replacing the second verb phrase by so preceded the copying rule, deletion could be accomplished on the basis of formal identity.

Aside from the fact that there is no other motivation for this proposal, the data scarcely warrants it. Even if for some people the interesting reading of (69) may be excluded if the arms in question are just gruesome possessions of John and Mary, in (71.a,b) the normal interpretation has Mary lose her book and John play with his toys—yet these are alienable possessions.

(71) (a)  Peter lost his math book and so did Mary.
     (b)  Sue played quietly with her toys and so did John.

There is evidence in the other direction, though not as clear. Consider the following sentence:

(72) Algernon went to visit his young aunt who lives in Georgia and so did Maisie.

Without special stress, it is highly questionable whether this can be interpreted to mean that Algernon and Maisie visited separate young aunts living in Georgia. Yet aunt presumably takes an "inalienable possessive." In all these sentences there seem to be a number of factors at work excluding or favoring one interpretation or another. It is not clear that a class of inalienables is significant.

There are two more, related sets of facts which Fillmore noticed and regarded as favoring a syntactic distinction between alienable and inalienable possession. Sentence (73.a) is ambiguous.

(73) (a) I burned my fingers. [134]
     (b) I burned your fingers. [135]
     (c) I burned my draft card. [136]

Only the first is ambiguous in the intended sense. Under both relevant readings of (73.a) an inalienable relationship between my (I) and fingers is intended. The two senses correspond, roughly, to (74) and (75).

(74) I burned something (on purpose)--my fingers.

(75) (a) I burned myself (accidentally).

or

(b) My fingers (got) burned.

The reading of (73) corresponding to (75) would come from something like (76).

(76)

```
                    S
               /         \
            MOD          PROP
                      /    |         \
                    V   Locative (!)        Agent
                    |    /      \          /      \
                    |  PREP     NP      PREP      NP
                    |         /    \              /|\
                    |        N    Dative         / | \
                    |        |    /   \         /  |  \
                    |        |   ?    NP       /   |   \
                    |        |        /\      /____|____\
                  burn    fingers    me            I
```
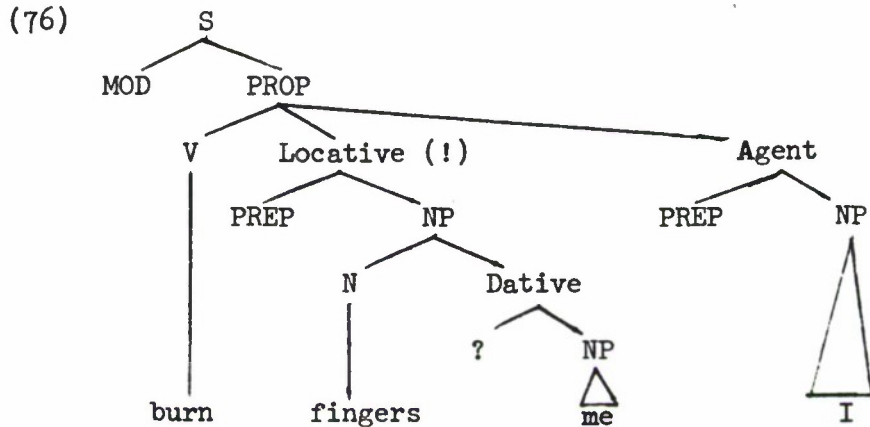
This would be converted to (73.a) by the general rule moving Agents into subject position; the same rule derives (73.b,c) from a similar structure.

The other reading of (73.a), however, Fillmore proposes to derive from a tree of the form:

(77)

```
                    S
               /         \
            MOD          PROP
                      /         \
                    V         Locative
                    |        /        \
                    |      PREP       NP
                    |              /      \
                    |             N      Dative
                    |             |        |
                    |             |        NP
                    |             |        /\
                  burn         fingers    my
```
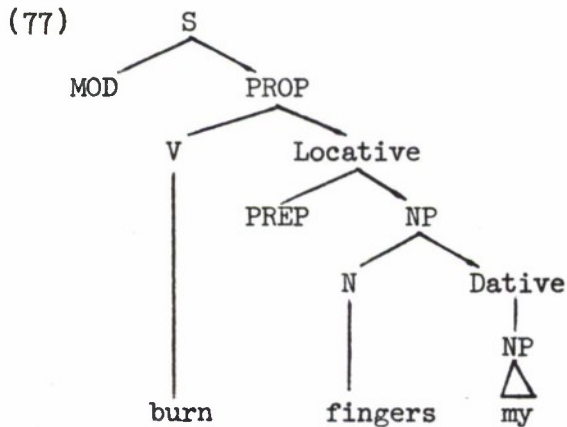
Under this analysis a special rule preceding the ordinary subject placement rules (which would give (48.b) could optionally copy the Dative NP into subject position to give (73.a) at the surface. Presumably (78), if it is ambiguous, like (73.a), would be obtained by then applying the rule that Fillmore postulates elsewhere in order to derive (79.a) instead of (79.b). (See below for discussion of **some** of the implications of that rule.)

(78)  I burned myself on the fingers.

(79) (a)  Mary pinched John on the nose.    [152]
     (b)  Mary pinched John's nose.         [147]

This seems right on the whole, though the rules must be highly complex.  However, as far as we can determine, it is not relevant to the claim that there is a distinction between (semantically) alienable and inalienable possession.  Notice first that the reading of (73.a) resulting from the special raising rule cannot be obtained for (80).

(80) (a) *John burned his beard.
     (b) *John burned his tooth.
     (c) *John burned his heart.
     (d) *John had unknowingly burned his lungs by inhaling
             those fumes.

In fact the raising rule appears in these examples to be limited to those parts of the body capable of feeling the effect of an accidental burning.  Especially compare (80.a-d) with (80.e).

(80) (e)  John burned his tongue because the chocolate you
              gave him was still boiling.

In considering these examples it is important to recognize that the intended sense correlated with the possibility of applying the raising rule is independent of whether the burning was accidental. At least, the burning could be accidental, as in (80.d), without involving the intended meaning, for we can get sentences like (81):

(81)  I burned my new coat.

which are ambiguous, the two meanings related to the possibility of continuing the sentence by (81.a) or (81.b), depending on whether the burning was accidental or not.

(81) (a)  ..., which was awfully careless.
     (b)  ..., to spite my husband.

However, the meaning of (81) related to (81.a), "I" is a case in the top sentence, presumably in the Dative.  For the relevant meaning of (73.a) and for (80.e), however, the body-part noun is itself the Locative or Dative case on burn.  The claim is that a structure like (77) cannot yield (81).  Note that for example (80.d)

is perfectly acceptable with a reading parallel to a sentence like (81), i.e. <u>John had unknowingly burned his coat by leaving it on the boiler</u>. There is an additional sense of (73.a) parallel to this, too. In both (73.a) and (82), however, this "accidental" sense has the subject, "I," a Dative on the verb, not on <u>fingers</u> or <u>coat</u>.

With different main verbs the conditions under which structures like (77) can yield surface forms like (73.a) varies in interesting ways. For example (82) is ambiguous in exactly the intended sense, even though (80.b) was not.

(82)  John hit his tooth on a stone.

In this case, an accidental blow to the tooth is conceivable and moreover it would be perceived as a sensation in the tooth.

While these are no doubt horrifying difficulties facing any attempt to write such relationships into a grammar, it seems clear that the alienable-inalienable distinction is relevant only in that all those genitives that can possibly be subject to the rule represent inalienable relations. But additional restrictions must obviously be placed on the rule. Apparently these are dependent on fine (yet none the less quite clear) semantic distinctions unrelated to the alienable/inalienable separation proposed by Chomsky and Fillmore so that the latter distinction is redundant to the point where it becomes altogether irrelevant. It is just as odd to interpret (83) in the sense of (75) as to interpret (73.c) in that way. Yet the relevant relation in (83) is inalienable.

(83)  I burnt my father.

The inalienability of a possessive seems not merely insufficient to determine whether it can enter this putative subject-raising rule, but quite irrelevant to it.

A related argument for the relevance to the grammar of a distinction between alienable and inalienable possession correlated with deep structure cases turns out to fall under similar objections. Example (84) is relevant.

(84) (a)  I hit John on $\left\{ \begin{matrix} \text{the} \\ \text{his} \end{matrix} \right\}$ cheek.

(a')*I hit John's cheek.

(b) *I hit John on $\left\{ \begin{matrix} \text{the} \\ \text{his} \end{matrix} \right\}$ chair with a ruler.

(b') I hit John's chair with a ruler.

Fillmore, as we have remarked above, would obtain (84.a) by moving John from a Dative case on the noun cheek, optionally lea - ing behind a copy which ultimately would pronominalize to his. (84.a') would result if Fillmore's raising rule (which must be optional) had not applied. The deep structure postulated for (84.a,a') would therefore look something like (85), the optional movement of John being shown by the dotted line.

(85)
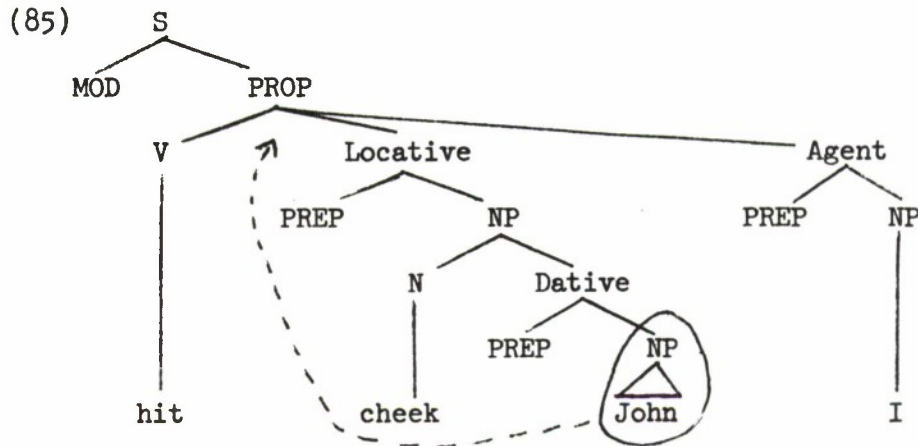


Since chair in (84.b') cannot take an appropriate case to underlie the possessive (which must therefore be derived from a sentence, or whatever), there is no way of getting (84.b) if, say, the movement rule operates before such non-case derived genitives have been formed. So far so good for the attempt to explain the possibility of raising certain genitives by deriving them from cases while others come from relatives. But the rule raising the dative of (85) into object position in the sentence (giving (84.a) instead of (84.a')) would apply only to a limited subset of the inalienables. Thus, for example, it would have to be prevented from applying to John in I hit John's father, for it must never yield *I hit John on the father from it. Furthermore, unlike the rule discussed pre- viously (for raising NP's like my in (76)), it would apparently have to apply to certain nouns which cannot be regarded as enter- ing into an independently defined inalienable relationship with the head--though they may represent cases on that head. For ex- ample, many speakers will accept both the sentences of (86).

(86) (a)  I touched John's sleeve lightly.
     (b)  I touched John lightly on the sleeve.

But unless "inalienable" means simply "behaves thus and thus with respect to rules X, Y, Z," sleeve presumably does not take inalienable possessives.

It seems, in any case, that the circumstances limiting the domain of this rule are highly complex, varying considerably from speaker to speaker; it may well be that the rule is governed not merely by the verb but by some sort of relation holding between verb and the head of the relevant NP, as the following suggest. A number of examples are given because in several cases it seems likely that there is no transformational relation holding between the set, a fact which may lead eventually to abandoning the raising rule, but will not substantially affect the selectional problems involved.

(87) (a) (i) *I hit Mary on the braids with a ruler.
     (ii)  I hit Mary's braids with a ruler.

    (b) (i) *I touched Peter on the shoelace.
     (ii)  I touched Peter's shoelaces.
    (iii)  I touched Peter on the sleeve as I passed.
    (iv)  I touched Peter's sleeve as I passed.

    (c) (i) *I hurt Sue on the toenail with a baseball bat.
     (ii)  I hurt Sue's toenail with a baseball bat.
    (iii)  I hurt Sue in the eye with a piece of wire.
    (iv)  I hurt Sue's eye with a piece of wire.

    (d) (i) ?I wounded John in the right leg with a
         carving knife.
     (ii)  I wounded John's right leg with a
         carving knife.
    (iii)  I wounded John in the eye.
    (iv)??I wounded John's eye.
     (v)  I wounded John in the spleen.
    (vi) *I wounded John's spleen.

    (e) (i)  I hit Reagan's fender with my old M.G.
     (ii)  I hit Reagan on the fender with my old M.G.

To generate all and only those of this group that form the sentences with the overt surface "Locative" as cases on nouns in the deep structure would do violence to the notion of case-dependency, would depend on no independent criteria, and would mean that apparently similar constructions like the source of the man's right leg in (d.ii) and of John's spleen in (d.vi), would have to be regarded as quite dissimilar. Thus, a raising rule cannot depend solely on whether the genitive comes from a case. The examples of (87) make it even less likely that an independent alienable/inalienable distinction is relevant.

Notice that the question is not whether additional factors are involved or not. Fillmore recognized quite correctly that not all inalienables go through the rules. The question is simply whether there is an independently defined alienable-inalienable distinction which is in any way relevant. All the evidence suggests that there is not. There are a number of constructions about which we understand very little, which operate when a number of different, though related, classes of head nouns are involved.

Summary

In this whole section, III.C.1, we have tried to show that there are arguments for deriving some genitives from deep structure cases on nominal heads. Some of these, like arm, are not related to verbs at all. In addition there are clear semantic and syntactic arguments for deriving other genitives from some other source, perhaps relative clauses. We have shown, too, that the arguments for deriving some genitives from cases are independent of the putative alienable/inalienable distinction--which seems to have little substance, in fact. Before dealing in detail with those genitives not derived from cases, which we shall now call POSSESSIVES (dropping the pointless "alienable"), it is necessary to examine some problems with the distinction which we have been building up in this section.

2.  Problems with the Proposal

We must turn to some considerations which tend to break down somewhat the distinction between case-derived genitives and those originating in, perhaps, some sort of relative clause. Most of the problems turn out to be serious only if particular relative clauses provide the source for possessives, and thus are in some sense more relevant to the argument developed in the next sub-section, where different relative clauses are considered as possible sources for alienable possessives. However these problems are at the same time highly relevant to the notion of case extended, as in the preceding pages, to apply to nouns, and it is convenient to deal with some of the issues which can be resolved in the next section (III.D) at the same time as those which are apparently less tractable.

It is, of course, important to the thesis that some genitives are derived from cases on the noun, and others from relative clauses, that there be independent criteria enabling us to distinguish these

two classes.  We have suggested in CASE PLACE that the subject place-
ment rules are optional for nouns.  Thus cases never obligatorily
form genitives.  In all the clear instances, the other genitives,
i.e. possessives, never turn into a Prep-phrase following the noun:
*the book of the man, *the jewels of my mother, etc.  (For further
discussion see E.3.)  In all the problems that follow we shall find
a certain tension between this single (and admittedly not highly
motivated) syntactic distinction, semantic criteria, and the need
to avoid generating unambiguous genitives from more than one source.

a.  Have and Case-derived genitives

Assume, first, with Smith (1964), Chomsky (1967) and most other
transformational grammarians, that the relative clause underlying
possessives is roughly of the form of (88.a), the sentence under-
lying the relative being, of course, something like (88.c):

> (88) (a)  the book that John has
> 
> (b)  John's book
> (c)  John has a book

The first problem is that the ambiguity noticed in John's arm
of (12.a), which we ascribed to the origin of the genitive in
either a case or a relative clause, can appear in sentences like
(88.c) in form.  For example:

> (89) (a)  He has two hairy arms.
> (b)  The baby has eleven fingers.
> (c)  You have a dirty face.

Thus (89.a) may be continued by either (90.a) or (90.b) depending
on the reading.

> (90) (a). ...so he can't be Jacob.
> (b)  ...which he took off a model gorilla.

Therefore (given a source of the kind assumed) a genitive of the
form John's dirty face will have a double derivation for the mean-
ing related primarily to a derivation from cases, and three routes
from deep to surface structure altogether.  This introduces a very
general problem.  The word have is close in meaning to genitives
(both case-derived and possessives), at so many points providing

a full paraphrase for genitives. Yet often, as we point out in section D, it is inadequate as a source for possessives. Thus, have gives us both too many and too few paraphrases.

The noun clothes provides an instance in which the addition of on to have enables the latter to paraphrase what appears to be correctly regarded as a genitive derived from a case. Example (91.a) seems to be ambiguous in a way related to that noticed for (12.a), disambiguated by the normal readings of (91.b) and (91.c) which are in turn paraphrased by (92) or (93) respectively.

(91) (a) John's clothes
     (b) John's clothes are scruffy today
     (c) Though he's not wearing any of them, John
         bought most of his clothes in New York

(92) The clothes that John has on are scruffy today.

(93) Although he's not wearing any of them John bought
     most of the clothes that he has in New York.

That there is a derivation of (91.a) from a case is suggested not only by the meaning of the head but also by the existence of such forms as (94) with of NP after the head. (See III.E.3 for further discussion of of NP. Also see CASE PLACE.)

(94) The clothes of the old tramp were torn and dirty.

Other evidence is provided indirectly by (87), where particular items of clothing probably act as if they selected cases. It might seem possible to derive genitives from have while excluding have on; but the general principles are far from clear. For example, if Mrs. Smith, a schoolteacher, has a number of children with her, it is probably acceptable to say that her children are misbehaving. (If they are!) It seems that the genitive would have to be paraphrased as "the children Mrs. Smith has with her," and not by the same form omitting with her. Even if have relatives do not yield genitives, or, if they do, if the unwanted forms can be excluded from such a derivation, it is disturbing to have such close parallels to the case derived genitives contain a semantically rather empty verb, without giving any account of the semantic relations between the near paraphrases.

The last example involving <u>have</u> is itself rather unclear because the grammaticality of crucial forms is uncertain to many speakers.  However it bears an interesting resemblance to several of the next batch of problems.  If it is possible to get forms like

(95)  ?The most recent interest of his uncle turned out
        to be painting grasshoppers.

then we could safely regard <u>interest</u> and similar words as selecting cases which turned into genitives.  To avoid the double generation of, for example <u>John's interests</u> we should then need to avoid (or constrain) the generation of genitives from relatives containing <u>have</u>, since we could otherwise get that phrase either from a deep structure consisting of <u>interest</u> and <u>John</u> in an appropriate case, or from

(96)  the interests that John has

On the other hand, it is not absolutely clear that (95) or any other form containing a Prep phrase on <u>interest</u> is fully grammatical and a large number of examples are obviously bad:

(97) (a) *that interest of my friend
     (b) *some interests of the chairman
     (c) *an interest of that explorer

If we wish to maintain that this criterion separates case-derived genitives from those originating as relatives, it is not clear that the genitive of <u>John's interests</u> and so on can come from a case.  Then we should need to allow forms like (96) to reduce to genitives.  Thus a decision either way, in this highly inconclusive instance, might provide significant, almost crucial evidence for or against deriving some genitives from a relative containing <u>have</u>.  In fact this example takes us rather deeper into the problem of relating <u>have</u> to genitives, for despite the failure of the prepositional phrase test—which would make preposing of the case on <u>interest</u> obligatory and disturb the one slender syntactic criteria for case-derived genitives known to us—the meaning of that noun does indeed seem to incorporate the same semantic relations as the adjective and verb in (98) below.  Moreover the relation between <u>John</u> and <u>interest</u> is constant and completely determined by the meaning of the head in all of the following.

(98) (a)   John is interested in mathematics.
     (b)   Mathematics interests  John.
     (c)   John's interest in mathematics

Thus far, the semantic evidence tends strongly to support a deriva-
tion of John's in (98.c) from a case.  However, there is a conflict
at this level too.  In addition to (98.a-c) the following must be
taken into account.

(98) (d)   John has an interest in mathematics.

If have is a real verb in (98.d) John appears to be a case on it,
in such a way that the total meaning of (98.d) is essentially the
same as that of (98.a).  Recall, however, that the origin and sig-
nificance of have is far from clear (cf. Bach (1967b) and Fillmore
(1967a)).  Once again we have reached something of an impasse, where
the interpretation of the evidence is not at all clear.

Moreover, notice that the relation between John and interest
in (98.d) is determined by the meaning of interest.  (See p. 28.)
In a sentence like (99):

(99)  John has a fine home.

the relation between John and home is rather vague, reminiscent of
the indeterminacy of the meaning of his horse (52.c).  Add to these
observations the fact that a sentence like (89.a), He has two hairy
arms is ambiguous in that the relation between he and arms may be
either that of possession or that which is determined by the mean-
ing of arms.  It then becomes clear that there must be some very
close tie between have and genitives in general--not just posses-
sives.  When the meaning of have is left undetermined or vague, the
meaning of the corresponding genitive tends to be so.  When the
meaning of have depends on the meaning of its surface object,
genitives having that surface object as head are likewise constrained.
And where there is ambiguity in the have construction, there tends
to be the same ambiguity in the genitive.  These observations do
not in any way suggest that have-relatives underlie all genitives.
The meaning and deep syntax of have is little understood and the
relation may well go in the other direction.  We leave this as a
major unresolved problem.

b.  Semantic Evidence for Extra Cases

(i)  House

There is another major problem which we can exemplify first using the noun house.  This noun may well call for some case or other from which to derive certain genitives but for which the syntactic criteria do not point unambiguously in that direction.

(100)  We're going to play at Billy's house today.

Here, assuming Billy is a child, the only possible relation between Billy and house is that Billy lives in the house.  It seems to be the only relevant relationship in such a sentence.  It is not relevant  whether Billy by chance owns the house or not.  If the meaning of house is basically something like a thing built for someone to live in, it may be possible to argue that Billy fills some sort of "slot" in the meaning in that it is he who lives in this house.  (But see discussion of (30.a).)  Continuing for the moment to assume that relative clauses with have provide the source for (alienable) possessives we find it impossible to obtain such a source for Billy's house in (100), despite the flexibility in meaning observed for have.  Thus (101) cannot mean that Billy lives in the house--what it can mean is not so clear.

(101)  Billy has a house.

As with so many of the forms derived from cases (cf. his dirty face) we can get the right meaning from a have sentence if the noun is further modified, in which case it is the modification that is asserted.  In (102) Billy may just live in the house.

(102)  Billy has a nice house.  (Billy's nice house.)

On the other hand, if we derive the genitive on house from a case, where it has this meaning, there is apparently no form like *the house of my mother or *a house of this child.  So we should have to postulate obligatory preposing of the case.  Moreover, the semantic argument is not compelling, and the significance of the evidence provided by (101), (102) is little understood; in particular it is still an open question whether relative clauses with have underlie any genitives.  If not, or  if there is an alternative source for the genitive of (100) there is no compelling argument at present for deriving that genitive from a case.

(ii)  Table

The noun table will illustrate another problem of the same sort.  The following seem to be possible paraphrases:

(103) (a)  John's table has turned out better than mine.
      (b)  The table that John made has turned out better than the one I made.

It is not possible to paraphrase this meaning of John's table by a relative clause in which has is substituted for made.  Does this mean that some genitives come from relatives containing make (create, produce...?), or is it the case that table--and all artifacts--will inherently allow an Agent?  In general we do not get:

(104) (a)  *The table by John (has turned out well).
      (b)  *a table $\begin{Bmatrix} of \\ by \end{Bmatrix}$ that carpenter
      (c)  *this bookshelf $\begin{Bmatrix} of \\ by \end{Bmatrix}$ my father
      (d)  ?that house by a Brazilian architect

though when the maker is famous in the right field such forms seem quite acceptable.

(105) (a)  a house by Frank Lloyd Wright
      (b)  the bowl by Leach
      (c)  some chairs by Hepplewhite

It is worth noticing that there are resemblances between the form of (105) and Agents found with picture, book, etc.  There is as yet no compelling semantic argument for deriving the genitive of (103.a) from a case, and whereas it might prove feasible to motivate a distinction between case-derived and relative-derived genitives ((105) as against (104)) it would be strange indeed to find a condition on a preposing rule that made it obligatory or optional according to the status of the person referred to by the moved NP.  If, as seems to be the case, (103.a) can be derived from an alternative source, so much the better.  In considering relative clauses we shall consequently have to consider nouns like table again.

c. Cases "Missing" from Certain Abstract Nominals

The last problem in this section concerns words like announce-ment. This exhibits some features in common with table, some with interest. The problem is quite possibly crucial for a deeper under-standing of the relationship between case and meaning. First, notice that there are (at least) two different functions of the nominal in question. It may be what Lees (1960a) called an "action nominal" (106.a); it may on the other hand name an abstract or semi-concrete entity akin to book (106.b). Any adequate account must be able to show how the abstract entity, together with a semantically weak verb ("make") paraphrases the related verb announce (108) in such a way that the semantic relations and cases of the two sentences are essentially the same just as for the noun interest used with have, and sentences built around the related verbs or adjective. (See examples (98.a-d) and discussion, above.)

> (106) (a) The announcement by the judge to the jurors of
> an adjournment to the following week caught them
> all by surprise.
> (b) We heard that announcement some time ago.

> (107) The judge made an announcement to the jurors.

> (108) The judge announced something to the jurors.

As with interest, we cannot be sure that none of these sentences are derived from other structures; in particular, that (107) is not derived from (108). Assume that they are independent. Our main task is to explain why the action nominal seems, predictably, to occur both as in (106.a) with a by NP, and in the genitive form,

> (106) (a') The judge's announcement to the jurors of
> an adjournment to the following week caught
> them all by surprise.

while the "abstract entity" form of the nominal occurs only as in (109) with the Agent converted to a genitive and not as in (110); though there is a relative clause paraphrase of (109), i.e. (111).

> (109) We listened to the judge's announcement to the jurors.

> (110) *We listened to the announcement by the judge to the
> jurors.

> (111) We listened to the announcement made by the judge
> to the jurors.

Leaving aside other apparent discrepancies in the case frame-
work of these various forms, recall that the noun <u>interest</u>, too,
occurs in the predicate of a semantically rather weak verb (<u>have</u>),
thus forming a paraphrase of the related verbs (98.d) and (98.a),
and there is some doubt about the acceptability of prep-phrase
forms after that noun: (97.a-c). It seems, particularly with
<u>announcement</u>, that the abstract entity nominal (of the pair) may
itself lack the Agent (Dative, if this applies to <u>interest</u>) which
the related verbs, in sentences and "action nominals" are capable
of appearing with. In other words in (107) the "dummy" verb <u>make</u>
adds this case to those of the nominal to make up the meaning of
the sentence as a whole, so that to get an Agent associated with
the nominal it is necessary to use a relative clause containing
this verb as in (111), which will optionally reduce to the genitive
of (109). Such an account is so far adequate, dealing effectively
with the ungrammaticality of (110) or any other prepositional
phrase paraphrase: <u>announcement</u> takes no agent.

However, (112) is virtually a paraphrase of (107), while (113)
is of dubious grammaticality and certainly of different sense.
Assume some sort of equi-NP deletion to yield (107) (perhaps with
<u>the</u> instead of <u>an</u>) from (112).

> (112) The judge made [his announcement to the jurors]
> yesterday.

> (113)??The judge made the announcement that he made to
> the jurors yesterday.

Then it would be necessary to postulate that nominals of this
kind had obligatory preposing of the Agentive case to form a
genitive. But otherwise cases do not obligatorily prepose to
form genitives. Since we understand so little about the difference
in internal and external behavior of different kinds of nominals,
having no specific motivation, for example, either for deriving
the one <u>announcement</u> from the other or for relating them in the
dictionary, and since it is not possible to distinguish the two
uses clearly, it is meaningless to pursue the question further
at this point. In the long run it may be that the relative merits
of the approach to nominals adopted in this grammar as compared
with that which has become known as "generative semantics," as recently
developed by Ross, Lakoff and McCawley, will be decided partly by
the facility with which they are able to handle relationships be-
tween constructions of the sort under discussion here. It would,
for example, be particularly interesting to examine in detail the
relationship between those deep structure nodes which ultimately
collapse under a lexical item inserted late in a derivation

according to recent proposals made by McCawley, and the cases which
in this grammar that "same" lexical item takes. None of this have
we undertaken and the problem of announcement must remain essentially
unsolved. For the purposes of this grammar we choose, quite
arbitrarily, to ignore the instances of obligatory pre-posing (e.g.
(110)) and to regard announcement as always selecting an Agentive
case, just as the related verb does.

## 3. The Cases Underlying Kinship and Part-Whole Genitives

There remains only one problem to be dealt with in this sec-
tion: to determine if possible what cases are selected by the head
nouns to yield (1) Kinship, (2) Part-Whole and (3) Weather genitives.
It was convenient to postpone discussion of these until it had been
at least tentatively established that they were the only construc-
tions quite unrelated to verbs in which the genitive came from a
deep case. In other words, that they might represent the entire
stock of cases selected by "real" nouns. They, together with the
(alienable) possessives (which are to be derived from some other
source) made up virtually all the "possessives" as these were
originally set up, and we have argued that (alienable) possessives
do not come from cases. Consequently it appears that all the nouns
that take cases yet are unrelated to verbs fall into one of these
three categories.

Fillmore (1967a, p. 66) regarded both kinship and body-part
genitives as coming from a dative on the noun itself; citing as
evidence for this particular case only the fact that the NP under
it is animate, and noting in passing the occasional appearance of
the typically dative preposition to, which we commented on above.
Although he does not deal in detail with the non-animate part-whole
genitives, he suggests later in the same paper that expressions
like (114) as well as behind the house, ahead of the cat, and
next to the tamer may come from locatives on the head "nouns" (i.e.
prepositions in the above instances).

> (114)  corner of the table, edge of the cliff,
>        top of the box                                    [183]

The examples of (114) are, of course, what we have referred
to above as purely relational part-whole genitives, distinct in
various ways from the other inanimate part-whole constructions
like key of/to the door, windows of the house and so on, with which
Fillmore does not deal. It seems likely however that he would have
analyzed those, too, as Locatives, while the relationship between
weather genitives and sentences like the studio is hot (Fillmore

(1967a), example (81) which Fillmore analyzed as having a Locative subject, suggests that the animate case-derived genitives come from Datives, and inanimates from Locatives, which is what, rather arbitrarily, we assume in the lexicon of this grammar. (See LEX.) Notice that Langacker (1967), dealing with French, analyzes forms parallel to the ordinary inanimate part-whole constructions (e.g. the door of the cathedral), as coming from a Dative rather than a Locative (in a relative clause, as it happens, but that is irrelevant here); but he does not offer any specific arguments for using that case with the inanimates, beyond the possibility of making them quite parallel to animates and in fact there do not seem to be any.

On the other hand there are no strong arguments for any other particular case or cases. Recognizing this, and given our present understanding (or, rather, lack of understanding) of the relationship between meaning and case framework, we generate only Dative or Locative on these kinship, part-whole and weather nouns, relying on factors other than case to account for the great differences in the relationship between genitive and head in the three groups. In fact, it is not even clear what kind of question it is to ask whether the differences in the relationship between his and father and his and arm in his father and his arm are of a sort that should be represented by a difference of case. Nor is it clear whether we are asking an empirical question if we query the appropriateness of calling the cases Dative and Locative, thus associating them with verb-related cases.

More important at the present time is the problematical fact that the solution tentatively adopted in this grammar represents a claim that differences in conditions on preposing (and other rules) exhibited by the following (a) and (b) pairs are not directly attributable to case differences. Needless to say there are other, similar examples.

(115)(a) *the weather of Chicago
    (b) the top of the mountain

(116)(a) ??Everest's top (?the mountain's top)
    (b) Chicago's weather

(117)(a) the weather $\left\{ \begin{array}{l} \text{*to} \\ \text{in} \\ \text{of} \end{array} \right\}$ that city

    (b) (i) the top $\left\{ \begin{array}{l} \text{to} \\ \text{*in} \\ \text{of} \end{array} \right\}$ that box

        (ii) the windows $\left\{ \begin{array}{l} \text{*to} \\ \text{*in} \\ \text{of} \end{array} \right\}$ that house

(118) (a)  the house $\left\{\begin{array}{l}\text{*to}\\ \text{*of}\\ \text{in}\end{array}\right\}$ the woods

(b) *the woods' house

(The appearance of of-NP in the above is taken as evidence that pre-
posing is not obligatory.  See E.3.)  An example like (118) was
discussed earlier.  (See (38), etc.)  The Locative may not represent
a case within NOM--but again it may.  This question is open.  Noun
compounds like table-top need to be taken into account, and these
we have not analyzed.  (See Section F.)  Some of these problems are
discussed further in CASE PLACE, and in section C and E, expecially
the problems of accounting for the appearance of of NP forms.

## Summary

Summarizing section C in brief, we have shown above that there
are some nouns which, like destruction, take roughly the same cases
as the related verbs do; there are others, like arm which can
apparently take cases, though what cases are involved it is hard to
say; and, finally, there are nouns like kennel which take no cases.
Nouns from all three classes can appear with genitives.  For the
first two classes of noun mentioned, the genitive probably can
come from a case while for the last there must be some other source.
We have tried (though not with complete success) to suggest criteria
that will distinguish the three classes of genitive and have
discussed some of the problems that our analysis gives rise to.

In general it seems fair to claim that, so far, an $\bar{x}$-case grammar,
such as this one  is able to handle the problem of the source of
genitives at least as well as any other, and that it raises some
interesting and important questions about the semantics of the
genitive.  For the rest, it is impossible to judge the analysis as
a whole without considering the source of possessives, to which we
now turn.

D.  What Relative Clauses Yield Genitives?

In this section we can assume that kinship, part-whole and weather genitives come from cases and, consequently, that the ideal relative clause source for possessives will not yield these genitives except to produce the desired ambiguity of such forms as <u>Jane's eyes</u>. Thus, given the arguments in section C, for using cases for certain genitives, it is absolutely necessary to avoid generating <u>John's father</u> from a reduced relative clause, and if <u>interest</u> selects a case which turns into <u>his interest in mathematics</u> we must avoid generating this from a relative clause too. Since there is at least some doubt about the case-frame of <u>interest</u> (see examples (96)-(98)) it will be as well to avoid having to choose between alternative sources for the possessive on the basis of their ability either to generate or to exclude the genitive on <u>interest</u>. Obviously, then, the special role played by cases on nouns in this grammar places quite specific constraints on the relative clause source for possessives.

Were it not for the fact that we are deriving a considerable number of genitives from other sources than the relative, we should have to impose very different, weaker constraints on that source. It would, for example, have to yield the relevant examples of (17) through (20), which, we have said, seems to be impossible to do in any general fashion.  (See also Jackendoff (1967).)

(17)  (a)  Chicago's weather
      (b)  the weather in Chicago

      (c) (i)  *the weather that Chicago has
         (ii)  *the weather that is in Chicago

      (d) (i)  *Chicago has some weather
         (ii)  *some weather is in Chicago

(18)  (a)  the lake's edge
      (b)  *the edge that the lake has
      (c)  ?the lake has an edge
      (d)  *the edge is to/of the lake

(19)  (a)  the man's head
      (b)  *the head that the man has
      (c)  ?the man has a head
      (d)  *the head is to/of the man

(20)   (a)  Mary's mother
         (b)  *the mother that Mary has
         (c)  Mary has a mother
         (d)  *the mother is to/of Mary

We do not propose to deal further with the problem of deriving such a wider class of genitives from relatives, but rather, assuming a derivation from cases, to find a suitably constrained relative clause source for possessives and to show the problems that this involves, since those problems may well be crucial in considering the theoretical claims of this grammar. This course of action demands that we distinguish as separate, potential sources of possessives, two forms that Smith (1964) assumed, without much discussion, to be transformationally related stages in the derivation of possessives. Underlying (119) were, successively, (120) and (121). We cite these as Smith did, ignoring irrelevant differences in her framework, and in particular the matrix sentences of (120) and (121).

(119)   ...John's hat...       [37]
             ⇑
(120)   ...the hat is John's...   [31]
             ⇑
(121)   ...John has a hat...    [38]

(120) and (121) are not synonymous; nor do they occur in the same environments, as we shall show in the course of the rest of this section.

Notice that Smith's argument for deriving (119) from a sentence containing (121) as a relative clause via one containing (120) depends in a large part on considerations of simplicity which turn out to be quite irrelevant. Between (120) and (119) come the stage (119').

(119') (*)...the hat of John's...   [36]

The genitive was then preposed. Superficially, the resulting series of transformational steps resembles that through which adjectives are taken: <u>the book that is green</u> ⟹ <u>*the book green</u> ⟹ <u>the green book</u>. Just as for possessives the middle form, after reduction of the relative is sometimes obligatorily reduced (as in the above examples) and at other times may not be: <u>*the missing 10 pages book</u>, <u>*a John's hat</u> vs. <u>the book missing 10 pages, a hat of John's</u>. However, clearly the conditions for preposing adjectives

and possessives are quite unrelated. Moreover, as example (122) shows, the genitive is moved into a very different position. Thus there must be two quite separate pre-posing rules:

(122) (a)  John's three green books
(b)  *green three John's books

In (122), three is generated in Det to begin with; it is clear that the adjective has to be placed to its right, the possessive to its left. Thus the similarity between the derivation of genitives and that of adjectives turns out to reside only in the fact that both make use of the rule of relative reduction. Even that is suspect, however. Observe that in general copular sentences containing predicate nominals seem not to reduce.

(123) (a)  The man that is a carpenter came later.
(b)  *The man a carpenter came later.

If (123.b) is to be excluded, rather than becoming (See Bach (1967b)) The carpenter came later, then it is not obvious that Smith's proposals would introduce greater generality into the grammar even in this respect. Anyway, it is necessary to constrain the relative reduction rule in various other ways that are little understood but which make it hard to support any analysis on the grounds that that analysis would increase the generality of the reduction rule. For example, it is apparently necessary to prevent the reduction of (123'.a) since there is no acceptable output:

(123') (a)  The man that is ill wants to leave.
(b)  *The man ill wants to leave.
(c)  *The ill man wants to leave.

Moreover, Smith's proposal requires that the postposed genitive (hat of John's) represent a stage in the derivation of the preposed one, for those genitives which come from relative clauses. For those coming from cases however, genitive marking takes place in the preposed form. There is apparently no non-arbitrary way of accounting for the fact that the conditions for post-posing/pre-posing would be essentially the converse of each other for these two sets if we therefore consider the stages in Smith's derivation as alternatives, weighing each against the criteria which must be met by the source of possessives in this grammar. This must not be taken to mean that we assume entirely independent sources for (120) and (121)

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since both may come from a single deep structure which is subject to different derivational constraints below this level. For the present purpose, however, we can ignore that possibility and assume that the two structures differ in the base.

## 1. Relative Clauses with Have

Sentences with have, like (121), are available to provide the source of most possessives. The meaning seems to vary appropriately, yielding very nearly the right semantic range. Nevertheless, as the following examples show, there are semantic problems with such a derivation.

(124) (a) Our dog has a kennel.
     (b) The kennel that our dog has is too small.
     (c) Out dog's kennel is too small.

(125) (a) Billy has a house.
     (b) The house that Billy has is beautiful.
     (c) Billy's house is beautiful.

(126) (a) I have a cold.
     (b) The cold that I have is growing worse.
     (c) My cold is growing worse.

(127) (a) John has a horse.
     (b) The horse that John has belongs to the riding school.
     (c) John's horse belongs to the riding school.

     (b') The horse that John has is likely to win him some money.
     (c') John's horse is likely to win him some money.

(128) (a) Mary has an interest in mathematics.
     (b) The interest that Mary has in mathematics is surprising to her parents.
     (c) Mary's interest in mathematics is surprising to her parents.

(129) (a) Mr. Smith has an idea.
     (b) The idea that Mr. Smith has is probably right.
     (c) Mr. Smith's idea is probably right.

A number of these examples certainly seem to provide evidence that have is very closely related to possessives. For example (124.a) does not imply that the dog owns the kennel, while in (125.a) ownership can be the relation between Billy and the house. In (127), correctly, the favored reading of both the (b) and (c) sentences is that John is simply borrowing, or riding the horse, while in (b') and (c') there is about the same degree of vagueness, for John may own or have bet on or drawn the horse in question. The (a) sentence includes all the right possibilities. It is unclear how some of these are filtered out for (b) and (c), but notice that the underlying relatives of (b) and (b') give just the right meanings for (c) and (c') respectively.

It has already been pointed out that in general there are no have relatives for kinship, part-whole and weather genitives (provided they have no modifiers--see below).

> (130) (a) *the mother that John has
> (b) *the face that Mary has
> (c) *the temperature that the room has

This is another point in its favor if these genitives come from cases.

On the other hand, there are a number of serious problems with this derivation. First, have relatives unless arbitrarily prevented from doing so, will yield a second derivation for any case-derived genitive that has a modifier present in the NP:

> (131) (a) the rich uncle that John has
> (b) the lovely eyes that her son has
> (c) the awful weather that Chicago has

Moreover, for some kinship terms there appear to be viable relative clauses containing have, though they are dubious paraphrases of the corresponding genitives.

> (132) (a) The sisters that John has help him to understand women.
> (b) John's sisters help him to understand women.

Another problem concerns examples (128) and (129). If interest and idea do not allow cases, then the fact that there are have relatives paraphrasing the genitives is indeed an advantage of deriving possessives from that source. However, semantically it seems most likely that nouns like these will take cases, and in the discussion of the last section that obligatory preposing might have to be postulated anyway for certain constructions if forms like announcement are also taken into consideration.

If so, (128) and (129) must be regarded as counterexamples to the proposal to derive possessives from have.

(125) raises a different problem with have as the source for possessives. We argued, in connection with examples (100) and (101) that Billy has a house cannot simply mean that he lives in one, and that the house that Billy has can't refer to one that he lives in (as a child, without renting or owning it), but that Billy's house as in, "We're going to play at Billy's house today" can mean just exactly that: a house in which Billy lives.

A further objection to this proposal is that it fails to provide a suitable source with the right range of meaning for the following possessives, among others:

(133) Peter's team

(134) That is Maria's chair so don't sit there.

(135) John has Billy's ruler.

The first of these can be used to refer to a team that Peter is associated with in that it is the team that he:

(136) (a) coaches
(b) captains
(c) owns
(d) has placed a bet on
(e) plays for; is playing for at present
(f) works for
(g) belongs to (though he doesn't play)
(h) supports--in general
(i) has just favored, in an argument

but at most the team that John has can refer to (a)-(d). Both (e) and (f) could conceivably come from cases but we can see no source for the others.

The meanings of (134) which concern us here vary roughly between (137) and (138). (139) does not paraphrase either.

(137) That is the chair that Maria will sit in.

(138) That is the chair that Maria likes to sit in.

(139) That is the chair that Maria $\begin{cases} \text{has} \\ \text{will have} \\ \text{had} \end{cases}$ .

The last example of the group, (135), is similar. It is not para-phrased by (140), but rather by (141).

(140) (?) John has the ruler that Billy has.

(141) John has the ruler that belongs to Billy.

(140) is a perfectly grammatical sentence. It just happens to be a contradiction as it stands. Consider also a sentence like (142) where the genitive represents a relation of (legal) ownership, which is contrasted with (physical) possession.

(142) John doesn't actually have any of his money himself.

The next (and last) two problems do not directly concern the derivation from have, but represent difficulties which arise in other areas if possessives are derived from have-relatives. In the first place, it will be necessary to generate some genitives from relative clauses containing a verb like make. We noted in the last section that on the whole there seemed to be no good arguments for deriving genitives like my table where this means

(143) the table that I made

from, say, an Agentive case on table, but that they seemed rather to fit into a peculiar sub-class of possessive. If so (and the question is not really settled) it is presumably necessary to derive my table, in this sense, from something like (143). Certainly have-relatives don't merely give awkward paraphrases, or present neat derivations; in this instance they are altogether unsuitable.

Finally, if have (or, indeed, any construction other than the predicate genitive) provides the source of possessives, it is necessary to account in some way for predicate genitives like That book is John's. These could, of course, be quite unrelated to other genitives, but on both formal and semantic grounds (the latter described in detail below) this seems unlikely. Alterna-tively, they could be derived from other genitives. The most plausible method then involves deleting nouns in the predicate of a copular sentence:

(144) (a) That book is John's book.
⇓
(b) That book is John's.

It might be argued that the rules needed are those required in the grammar anyway, (1) NOUN REDUCTION TO ONE to reduce one of two identical nouns to one and (2) ONE-DELETION to delete one in certain environments. (See PRO, II.B.2 and III.C.) These rules do indeed operate on genitives.

(145) (a)  I have my book and Mary has her book.
           ⇓
      (b)  *I have my book and Mary has her one.
           ⇓
      (c)  I have my book and Mary has hers.

However, there are two problems in getting these rules to produce the right predicate genitives. The first is exhibited in the following:

(146) (a)  That is John's table.
      (b)  That is Chomsky's book on politics.

(147) (a)  That table is John's.
      (b)  That book on politics is Chomsky's.

It is surprising that while (147.a) can refer to a table that belongs to John or to one that he made (just as (146.a) can), (147.b) can only refer to a book that belongs to Chomsky, although (146.b) is ambiguous between this reading and that in which he is the author. Thus, if the deletion rule applies to (147.a) where the genitive is a possessive, it will have to be restricted in a peculiar way to prevent it from applying to the Agentive genitive of (147.b). That it may not apply at all to such forms is suggested by the following (see PRO, where in fact neither (148.a) nor (148.b) is generated.)

(148) (a)  John saw the blue book while I saw the green.
      (b)  *That book is the green.

The second problem with the deletion of predicate genitives to yield (147.a) and (147.b) is closely related. In other positions in a sentence the head noun deletes from such genitives as Chomsky's books (where the genitive comes from an Agent) to give:

(149)  I read one of Conrad's stories this week and one of Poe's last week.

It is then irrelevant what case the genitive comes from. If the case was Neutral it is possible to do this kind of deletion following the general ONES-DELETION rule mentioned in the last paragraph, to give:

> (150)  Mary's (recent) portrait (by Augustus John) isn't
>          as good as Arthur's.

However, it is quite impossible to get a Neutral reading (where the portrait in question represents Mary) for the predicate genitive:

> (150')  *That portrait is Mary's
>
>                    ⇑
>
>              [Mary]
>                          Neutral

though it is possible, perhaps, to get this interpretation for <u>that portrait is one of Mary's recent ones</u>. This observation suggests a relationship between postposed genitives (see E.1) and predicate genitives, but we are unable to pursue that possibility here.

Finally, apart from the difficulties noticed above in defining the domain of the deletion rule, notice that predicate genitives should, by this derivation, imply that there is only one object of the given kind in mind. So <u>this chair is John's</u> shoul‟ be equivalent to <u>This chair is John's chair</u>. However this does not appear to be the case.

> (151) (a)  This chair is John's.  (So are five others in
>                                                      the room.)
>         (b) ⎧ This one is John's chair.  ⎫  (?So are five others
>             ⎨ ?This chair is John's one.  ⎬     in the room.)
>             ⎩ ?This chair is John's chair. ⎭

cf.

> (152)  This chair is green.  (So are five others in the room.)

2.  Relative Clauses Containing Predicate Genitives.

Let us now consider the advantages over the <u>have</u> derivation of deriving the predicate genitive in the base as the source of alienable possessives. In the first place, not only do the plain case-derived genitives then lack a relative clause source, but the modified ones like <u>kind old mother</u> do too. They would not do so if

have provided the source.

> (153) (a) *the kind, old mother that is John's
>       (b) *That kind, old mother is John's.

Yet those nouns like arm which have ambiguous genitives can appear in such constructions. The meaning in that case is, in general, limited to that of the possessive, which is as it should be.

> (154) (a) (?)the eye that is John's
>       (b) That eye is John's.

(154.a), it is true, is somewhat infelicitous, but simple adjectives, too, seem to require preposing; so (?)Bring me the book that is green seems no less unsatisfactory than (154.a). In general, relatives containing the predicate genitive, like those containing preposable adjectives, are clumsy and bordering on the unacceptable. If, however, adjectives are derived by preposing, this similarity is, if anything, in favor of our derivation.

Consider next the ability of the predicate genitive to provide appropriate deep structures for (125.c) and (127.c,c'):

> (125) (a) Billy has a house.
>       ((b) The house that Billy has is beautiful.
>       (c) Billy's house is beautiful.

> (127) (a) John has a horse.
>       (b) The horse that John has belongs to the riding
>           school.
>       (c) John's horse belongs to the riding school.
>       (b') The horse that John has is likely to win him
>           some money.
>       (c') John's horse is likely to win him some money.

The following seem satisfactory, having the same range of meaning as preposed genitives; (125') and (127') could certainly be used to assert ownership, but, equally, to assert that the transitory relationship implied by (127.c') holds, or to refer to the fact that Billy lives in a particular house (125.c'). (For the moment we ignore (127.c), as opposed to (127.c').)

> (125') That house is Billy's.

> (127') That horse is John's.

(125') appears to be a more appropriate deep structure than the comparable have sentence, though the restrictive relative based on a predicate genitive is particularly bad: ?the house that is Billy's....

This proposal does not fare as well for (124) as have did.

(124') ?That kennel is our dog's.

Predicate genitives are in general not very satisfactory with non-human predicates: ?This bell is that cow's, ?the ball is my kitten's .... With these non-human predicates, the postulated deep structures are semantically quite appropriate. They could all be paraphrased (grammatically) by ...belongs to... sentences like

(124") That kennel belongs to our dog.

Nevertheless the proposed deep structures seem syntactically dubious and represent a very weak point in the proposal.

For reasons that have already been explained, it is impossible to use interest as crucial evidence for or against the proposal. Assuming that it selects cases, (128) has absolutely no paraphrase that uses a predicate genitive:

(128') *The interest (in mathematics) is Mary's.

Since this could provide highly significant evidence in favor of this proposal and against using have, the choice between have and the present source may depend on answering a question that remains open.

The evidence from idea is difficult to interpret. On the one hand, there are sentences like (155):

(155) Those ideas are mine.

On the other hand sentences with an unreduced relative on idea, containing a predicate genitive, seem altogether barbaric. For example, as a paraphrase of (129.c) the following seems to be semantically wrong and not simply awkward, as many similar sentences are.

(129') (c) *The idea that is your father's is probably right.

This could well be taken as evidence for generating a case on idea, but there seems no other motivation for that and (129.c) would therefore constitute a rather serious counter-example to using the predicate genitive as the source of possessives--if idea took possessives. But, again, there is at present no clear answer to that more fundamental question.

The noun cold, as in (126), unless it occurs with cases, also provides counter-evidence:

(126') *That cold is mine.

We leave this, too, as a counter-example, but it doesn't seem serious at this stage, since we know very little about the behavior of cold in this sense.

The evidence from (133) - (135) is unambiguously in favor of the predicate genitive. (133'), (134') and (135') have precisely the right range of interpretation:

(133') That team is Peter's.

(134') That is the chair that is Maria's, so don't sit there.

(135') John has the ruler that is Billy's.

Moreover, if this is the source of possessives in general, it is unnecessary to provide a derivation from a make relative for genitives like my table, where the speaker made the table in question. (cf. (147)) The predicate genitive allows this interpretation, as in (156).

(156) That table is mine but I prefer the one John made.

Yet there is no comparable interpretation for (147.b), nor, correctly, for other sentences like That book is Chomsky's, although it may be marginally possible to use a sentence like That picture is Picasso's to identify the painter rather than the owner.

In addition to the problems that arise in regard to (124') and (129'), there are two general problems with the proposed derivation from predicate genitives. In the first place it fails to give any account of the close semantic relationship between have and genitives. Within the framework of this grammar that is not necessarily very serious. In the first place, we do not generally expect to find that all paraphrases have the same deep structures. Secondly, though the parallels are far-reaching, they are not

universal. Moreover, there are at least two ways in which have can
be related to the predicate genitive.  First, if have itself is a
lexical item with extremely little semantic content taking a
Dative and Neutral, this might well yield meanings largely parallel
to those of a copular sentence containing Neutral and Dative cases.
The latter is a reasonable deep structure for Predicate Genitives.
On the other hand it is possible (and, in fact, in line with
Smith's original proposal) to have predicate genitives result from
the preposing of the Neutral rather than the Dative on have itself.
We have remarked elsewhere on other instances where a difference in
the application of Subject Placement rules can result in a change
of meaning.  (See CASE PLACE, with reference to load, for example.)
A special subject placement rule for obtaining predicate genitives
from the same base as have could be made to prepose Neutral
instead of Dative, deleting have and thus triggering BE-INSERTION
(see CASE PLACE).  However, in order to derive only the right
predicate genitives, it would be necessary to impose some peculiar
constraints on this particular application of the subject placement
rule.  For example, to avoid generating:

(157) *The book is a professor's.

but, instead:

(158)  A professor has the book.

it would be necessary for the Dative to prepose obligatorily if
indefinite.  Although there are, as we show in the next section,
constraints of this sort on preposing cases on nouns (but in
reverse--for indefinites often do not prepose), there appear to be
no other examples for verbs.

Despite the problems involved in the predicate genitive, it
seems to be overall the most appropriately constrained source for
possessives (via relative clauses) considered so far.  Before we
leave it there are two further points to be noted which tend to
argue against it, however.  First if predicate genitives are base
forms, the morphological resemblance between these genitives and
those derived from cases has to be regarded as purely accidental.
All things considered that is highly unsatisfactory.  Second, the
peculiar and highly constrained nature of this construction, on
which we have remarked from time to time, is not obviously any
easier to account for in the base then by constraining deletion,
etc.--we have simply shown that there does not appear to be a
rational way of dealing with it either by deletion or by con-
straining the subject placement rule.

## 3. Other Possible Sources

Two other possible sources for possessives deserve brief mention. The verbal form belongs to acts in almost all constructions in a very similar manner to the predicate genitive, which, in most instances, it paraphrases. Notice, however, that there are viable base sentences and relative clauses in most cases. In a few cases, (e.g. the kennel that belongs to our dog—cf. (124"))  the improvement in comparison to the predicate genitive is quite striking. In others, however (e.g. the team/house/horse that belongs to John), the resulting construction is considerably narrower in meaning, which is undesirable. This source would avoid the morphological problem referred to just above, but would re-establish the need for a different relative source for my table (my = Agent). If there is in fact a single source for all possessives it is unlikely to be belongs.

It may well turn out that within this grammar, and in all others deriving certain genitives from cases on nouns, the most appropriate source of possessives is within the Determiner in deep structure, as an alternative expansion of Art. Now this was the source proposed by Chomsky (1967) for inalienable possessives (a subset of the genitives that we derive from cases). We questioned the appropriateness both of Chomsky's classification and of his syntactic representation of "inalienable" relations. There seems to be greater prima facie justification for proposing such a derivation for those genitives which lack all but a vaguely "possessive" relationship with the head. We have not examined this proposal in any detail to see whether it is generally viable (though notice that the correct predicate genitives might be obtained by a rule of deletion—or whatever—operating prior to the introduction of other genitives into the determiner).

To summarize the observations of section D: given the constraints imposed by the rest of the grammar, there is no completely satisfactory source for possessives. The predicate genitive probably represents the most suitable sentential source but creates a number of problems. It is possible that possessives should be generated as Articles, but this possibility has not been explored.

This is a convenient point for a brief review of the relationship between sections C and D in which the sources of the genitives have been discussed. There are indisputably close relationships

between many genitives and cases in deep structure. We have been able to provide evidence for extending the sphere of such relation- to forms like John's arm, while rejecting the relevance of a notion of alienability. As a result we have been able to suggest a number of fresh approaches to the question of the source of possessives. Although we have rejected all currently proposed sources this in no way constitutes evidence against deriving some genitives from cases, since there is apparently no more satisfactory way of deriving all genitives in a general fashion.

In fact, by establishing a clearer distinction then before between the two classes of genitive, we have been able to pose a relatively small number of crucial questions—though we have not been able to answer them in this grammar. To the extent that these questions prove relevant to the problem of deriving genitives, they will provide support for the particular distinctions suggested here. Some of those questions, such as those raised with respect to the cases on idea, interest, house, etc., may well show that the notion of case is in fact not adequate to answer the questions that it has allowed us to raise in this area.

## E.  The Derivation of Genitives

We turn now to the operations that derive surface genitives and related forms from the deep structures proposed above. First we discuss and develop Jackendoff's (1967) proposal to obtain postposed genitives (like a book of John's) by a process of dele- tion, from partitive constructions such as one (book) of John's books. Although in some respects that proposal is attractive, it appears to have less motivation than Jackendoff claimed for it. For reasons given below, we reject his solution and offer an alter- native analysis involving a postposing rule. In the light of this we deal next with a number of constraints on the subject placement rules that form genitives and on the rule which derives possessive genitives from relative clauses. These constraints may not need to be separate conditions explicitly stated in the rules, but may result from rule ordering and so on. But in this section we have not aimed to do more than describe the facts. The third question dealt with in this section is the origin of "postposed nominatives" such as the man in "the arm of the man." Some people have tried to relate these directly to postposed genitives but we provide an alternative account. Most of the discussion is included in CASE PLACE and we merely summarize the argument here. This section ends with a brief discussion of how predicate genitives might be derived if they were not generated (as here) in the base, and some remarks on the rule for deleting the articles when there is a preposed genitive.

## 1. The Derivation of the Postposed Genitive

We have not yet accounted for forms like (159), in which the genitive, instead of preceding the head, follows it.

(159) (a)  The books of John's that you need are on the table.
      (b)  We talked for a long time about some proposals of his to lease three new properties.
      (c)  A new novel of Iris Murdoch's came out last month.

Smith (1964) regarded such postposed genitives as a stage in the derivation of preposed genitives. We have already argued (see (119) et. seq.) that there is little motivation for this, and that it complicates the statement of preposing and postposing rules since such forms as a proposal of mine, which are derived from cases, must be produced by postposing, whether possessives like a book of mine are or not. Yet the same constraints apply to both construc- tions, and postposed genitives that are possessives appear to act in every way like those that are derived from cases.

Jackendoff (1967) proposed a very different derivation for postposed genitives, giving them roughly the same underlying struc- ture as surface partitives like some of John's books, something like (160). Rules required to account for partitive constructions in general will yield (161.b): the first occurrence of books is reduced to ones and then deleted. Compare: Some men of the men— Some ones of the men -- Some of the men. For (162) on the other hand it would be necessary to reduce instead the second occurrence of books to ones. This could be done by making the partitive rule optional for genitives as it must be if sentences like ?Few men of those that had been left behind were willing to help are grammatical.

(160)

```
                    NP
          ┌─────────┼──────────────┐
         DET        N          PARTITIVE
          │         │          ┌────┴────┐
          │         │         PREP       NP
          │         │          │      ┌───┴───┐
          │         │          │     DET      N
          │         │          │      │       │
          │         │          │      NP      │
          │         │          │     /\       │
        some      books       of   John's   books
```
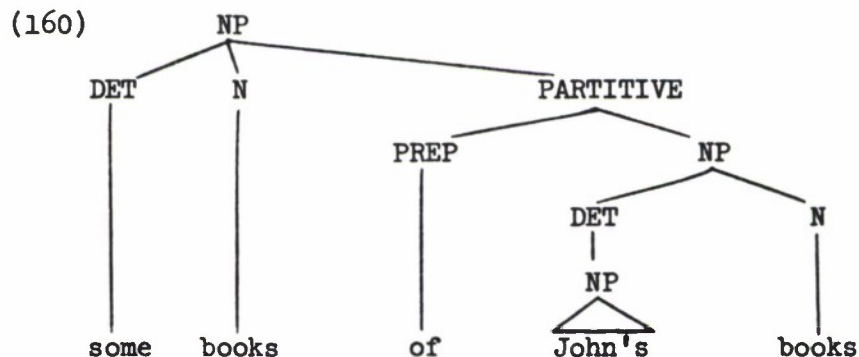
(161) (a)
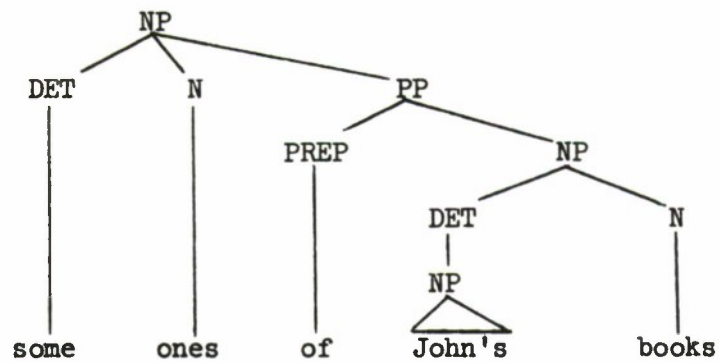


(b)
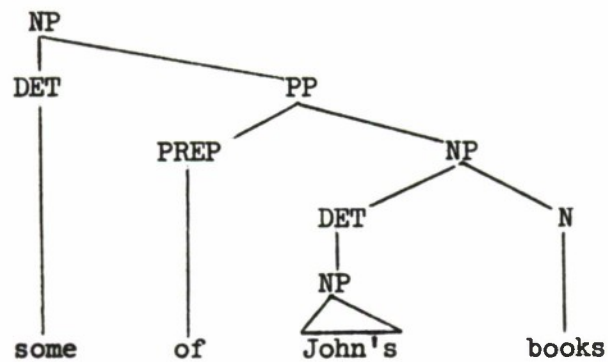


(162) (a)
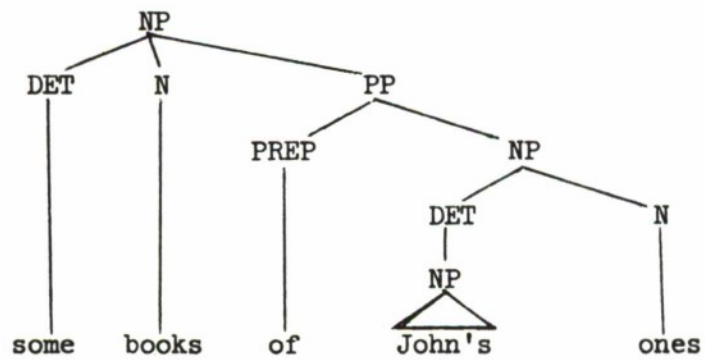


(b)
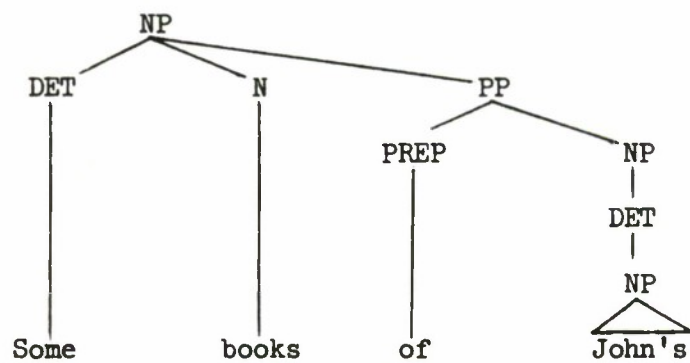
All, or virtually all, the postposed genitives would be produced
in the same way.  For a number of reasons, this is an attractive
proposal and one which would fit well into our account of both
pronominalization and partitives—in so far as we have an account
of the latter.  (See DET and PRO.)  Jackendoff provides several
arguments for it, though he is less definite about the origin of
one than we have perhaps implied here.  However, these do not seem
to be adequate to motivate it, in the face of a number of serious
difficulties.

Jackendoff observes that there appears to be a restriction
on the top NP of a partitive construction.  He cites the follow-
ing to show that if that NP is indefinite a partitive is possible,
but that if it is definite it must contain a relative clause, too.
(For further discussion of these problems see DET.)

(163) (a)  two of the men                         [45a]
      (b)  *the two of the men                     [45b]
      (c)  the two of the men that objected
           strenuously                             [45c]

In general, it is clearly necessary to prevent structures like
(164) from appearing, while allowing forms like (165), in which
there is an unreduced relative present:

(164)  *



(165)
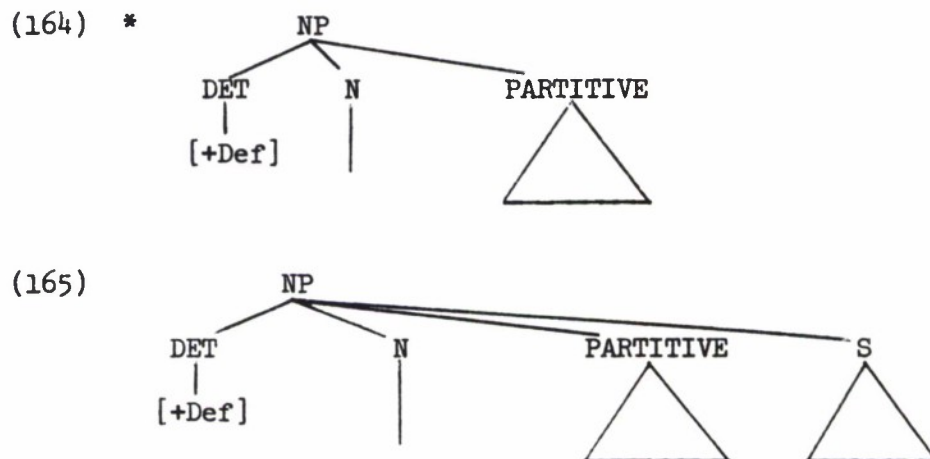


If postposed genitives were derived from partitives, as Jackendoff
proposed, a single set of constraints (however formulated) would

prevent the derivation of (163.b) and the starred forms of (166) by blocking (164).

> (166) (a) *the brighter ideas of his
> (b) *the ideas of his
> (c) *the two sons of Mary's
> (d) his brighter ideas
> (e) his ideas
> (f) Mary's two sons

The acceptable forms of (167) and (168) would all come from partitives in which a genitive occurred in the lower (i.e. partitive) NP, not subject to the constraint of (164).

> (167) (a) a book of John's
> (b) what book of John's
> (c) some books of John's that I have

> (168) (a) the shoe of Mary's that I lost
> (b) *Mary's shoe that I lost

On the other hand, the acceptable forms of (166) would come from a genitive dominated by a single, non-partitive NP, for in these the genitive is preposed: his (brighter) ideas (166.d,e), Mary's two sons (166.f). As in the U.E.S.P. grammar, these genitives, his and Mary's, are formed by Jackendoff by pre-posing elements originally to the right of ideas and sons. Provided the adjective preposing rule precedes the rule forming genitives, it is a simple matter to allow his and Mary's to be obtained in (166.d-f), while blocking (168.b), *Mary's shoes that I lost. The preposing rule must require that there be no relative in the top NP, but ignores preposed adjectives (and numerals).

We now propose an alternative analysis of postposed genitives which, as far as we know, has not previously appeared in print. Once this alternative has been described it will be possible to compare it with Jackendoff's partitive analysis.

It will be recalled that Smith (1964) regarded the postposed genitive as directly obtained from her relative clause source. In certain environments the (postposed) genitive was then necessarily pre-posed. It is possible that, as Smith assumed, the postposed genitive comes from a structure essentially the same as that which yields preposed genitives, but that instead of the preposed form being derived from the postposed, there are rules which obligatorily

postpose the genitive, moving it from the Determiner and placing it to the right of the head N under certain conditions. These conditions will, of course, have to yield the same distribution accounted for by the partitive analysis, and a choice between the analyses will depend on a comparison of the degree of naturalness and motivation of the conditions compared with the extent to which the partitive analysis can account naturally for the facts.

The conditions for postposing will depend largely on the contents of the Determiners of the top NP, and on whether that NP contains a restrictive relative clause which has not been turned into a preposed adjective. Assume that when a genitive is formed (from a case or a relative clause), it becomes right sister of ART. If ART is indefinite the genitive has to be postposed:

(166') (a)  a $_\mathbf{NP}$[John's] (blue) book $\Rightarrow$ a (blue) book of John's

(b)  what $_{NP}$[John's] book $\Rightarrow$ what book of John's

(c)  some $_{NP}$[John's] books that I have $\Rightarrow$ some books of John's that I have

None of the forms given as output above can ever be paraphrased by a plain, preposed genitive like <u>John's book</u>. Therefore, when the Article is indefinite postposing is obligatory.

On the other hand, if that Article is definite but there is no relative clause present, postposing may not take place. Instead, there is no surface realisation of the Article. (For further discussion of the deletion or loss of the Article see E.4.b of this paper.) For example:

$^\circ$(167') (a) The $_{NP}$[his] brighter ideas $\not\Rightarrow$ *the brighter ideas of his
$\Rightarrow$  his bright ideas (by loss of ART)
(b) the $_{NP}$[his] ideas $\not\Rightarrow$ *the ideas of his
$\Rightarrow$  his ideas
(c) the $_{NP}$[Mary's] two sons $\not\Rightarrow$ *the two sons of Mary's
$\Rightarrow$  Mary's two sons (by loss of ART)

If, however, the top NP contains an unreduced restrictive relative, postposition of the genitive must take place, whether the Article of that NP is indefinite or definite. (This fact has

been used by Chomsky (1965), Jackendoff (1967) and others, to argue
that restrictive relatives originate in the Determiner, but that is
not relevant here.)  (168'.a) shows that postposing may take place;
(168'.b) demonstrates that it must do so.

(168')  (a)   the $_{NP}$[Mary's] shoe that I lost $\Rightarrow$ the shoe
              of Mary's that I lost.
        (b)   the $_{NP}$[Mary's] shoe that I lost $\not\Rightarrow$ *Mary's

              shoe that I lost (by loss of ART)

(N.B.  There are some dialects that apparently do allow (168'.b).
In the same way, if there are demonstrative elements in the top
Determiner, postposing has to take place.  That this is so follows
from the fact that the output of (169) can never be paraphrased by
simple preposed genitives like Lucinda's dresses.

(169)  (a)   those $_{NP}$[Lucinda's] dresses $\Rightarrow$ those dresses of
             Lucinda's
       (b)   which $_{NP}$[my] proposals $\Rightarrow$ which proposals of mine

To sum up, postposing has to take place unless the top NP is
definite and contains neither an unreduced relative nor a
demonstrative.

We can now compare the partitive analysis with this one just
proposed.  Jackendoff contrasts his own final version with two
others that he considers and rejects.  One of these is essentially
that of Smith (1964) which we have already rejected.
The other proposal involves a rule which optionally creates post-
posed genitives in situ out of the input to the preposing rule if
that preposing rule has failed to apply to certain of these.  This
is an unintuitive, ad hoc solution which is rightly rejected by
Jackendoff, and which we shall not deal with in detail.  What is
important from our point of view is that the advantages of the
partitive analysis over either of these, carry over, with few
exceptions, to the analysis proposed here.  In addition, our analy-
sis has several advantages over the one using partitives.

We shall deal first with the advantages claimed by Jackendoff
for his system.  The most important of these, if correct,
is important.  He claims that the condition on postposing a genitive

from within a definite NP can be reduced to the constraint (whatever it is) that blocks partitives on definite NP's unless they contain restrictive relatives.  If so, there is much to be said for an analysis that allows this to be done, since the relationship holding between postposed genitives and elements of the top NP, as exemplified in (166)-(168) certainly requires explanation. Notice that Jackendoff's suggestion that the peculiar distribution of postposed genitives is related to the restriction on partitives appears to be supported by another, related similarity between the two constructions.  In general the relative clause on the head noun of the partitive (or postposed genitive) may not reduce and prepose.  (In (170.a), <u>those</u> ⇐ <u>the ones</u>:  See DET.)

(170) (a)  those of his books that are blue
      (b)  *the blue (ones) of his books

(171) (a)  the books of his that are blue
      (b)  *the blue books of his

The advantages of reducing both problems to a single constraint on partitives are somewhat reduced by the fact that that constraint itself remains altogether unexplained.  Moreover, when we examine other constraints on the two constructions there seem to be a number of significant differences between them.  First, although in general the relative clause allowing postposing on partitives may not be reduced ((170) and (171)), when there is a preposed superlative adjective (and perhaps in other cases) partitives are allowed but not postposed genitives--unless there is a restrictive relative clause in the NP.

(172) (a)  the youngest of the men
      (b)  the newest of John's cars

(173) *the newest car(s) of John's

(174)  the newest car of his that I've driven

Similarly, there are a number of quantifiers that fail to uphold the parallel in any simple fashion.  For example, if a phrase like (175) comes from a partitive like (176) as we have argued in DET,

(175)  all (of) John's books       (cf. all (of) the men)

(176) (*)all books of John's books  (cf. all men of the men)

it is necessary to account for the unacceptability, in most instances, of such forms as (177) which would be optionally derived from (176) by the proposed rules.

(177) *all books of John's

Similarly:

(178) relatively few of John's books

(179) *relatively few books of John's

The last of such counter-examples to any claim that the restrictions on postposed genitives that have to do with the top determiner can be explained by reference to partitives comes from demonstratives. When there is a deictic in the top determiner, the genitive must always postpose, but there are not always acceptable partitive parallels.

(180) (a)  I like thése pictures of Rembrandt's but not thóse.
     (b) *I like thése (ones) of Rembrandt's pictures, but not thóse.

(181) (a)  I only want to meet thóse friends of yours.
     (b) *I only want to meet thóse (ones) of your friends.

It must be granted that all these examples involve relatively controversial elements; they cannot of themselves provide strong evidence against Jackendoff's proposal. Moreover, all could be handled by specially restricting the derivation of surface partitives or postposed genitives. However, they would all be accounted for by the following rather simple explanation of the distribution of postposed genitives.

After the genitive is formed by moving an NP into the Determiner, the genitive can remain there only if the Article dominates [+Def] and nothing more. This is a rather natural condition ensuring that preposed genitives are unambiguous, but it requires that relative clauses be represented in some way that will associate them closely with the Article--unless they have been formed into preposed adjectives. Following Chomsky (1967), Smith (1964) and others, Jackendoff himself wishes to derive relative clauses in the Determiner, and although we have not tried to work out details here, we may arbitrarily assume that in some way the article acquires a feature [+Rel] if there is a restrictive relative, but that the preposing of an adjective deletes that feature. (Note

that the ART S analysis of restrictive relatives is discussed in REL.)  The following would have to postpose:

(182) (a)  the [John's] book that is over there
       [+Def]
       [+Rel]
       (the book of John's that is over there)

      (b)  thóse [your] friends
       [+Def]
       [+Dem]
       (thóse friends of yours)

On the other hand, since preposed adjectives do not trigger postposition, the following would be generated instead of the un-grammatical forms (171.b) and (173):

(171.b')  his blue books

(173')  John's newest cars

The ungrammatical examples involving quantifiers, (177) and (179), although superficially like (173), result from a constraint on **preposing**, leaving such forms as (177') and (179') as surface structures and entirely excluding genitives from such NP's.

(177') ?all books that are John's  ⟹ *John's all books

(179') ?relatively few books that  ?are John's  ⟹

    *John's relatively few books

(Note that the starred derivation from (179') is grammatical but only as a non-restrictive, which is irrelevant.)

Although this constraint is otherwise unmotivated it is not counter-intuitive.  Moreover, to avoid deriving the fully reduced form of (175), **all John's books**, from two sources this constraint would probably have to be incorporated in any partitive analysis of postposed genitives.  (If, as may be the case, the relative clause sources for (177'), (179') are ungrammatical, this removes the need for the constraint, of course.)

So far, in response to Jackendoff's main claim, we have tried to show that there are a number of significant differences between

the constraints on partitives and those on postposed genitives; and
that there is a very natural way of accounting for these differences,
as well as for the constraints that the partitive analysis handles.
We regard the apparent similarities with the partitive, as a chance
result and Jackendoff's proposed generalization as a false one.

The second advantage claimed for the partitive analysis is
that, unlike Smith's (or the straw man that Jackendoff sets up), it
makes all genitives dominated by the Determiner at the surface.  All
that is important, however, is that genitive formation should take
place by a single rule, in one environment.  But our rules derive
all genitives by preposing, too.  (Gerunds and predicate genitives
excepted.)  There seems no particular advantage, on this
score, to either analysis, as compared to the other.

Thirdly, it was claimed by Jackendoff that the partitive
analysis will "eliminate the problem of bringing in nominaliza-
tions and measure expressions where they are not wanted," citing
the following as examples.  (To make them relevant they should,
of course, include relative clauses since they have a definite
determiner, or they should be indefinite.  They are, in fact, just
as bad in either case.)

> (183) (a) *the assassination of Bill's      [41a]
>       (b) *the height of mine                [41b]

These are supposed to be automatically excluded by the fact that
neither <u>assassination</u> nor <u>height</u> can appear in a partitive con-
struction:

> (184) (a) *one of the assassinations of Bill  [42a]
>       (b) *one of my heights                   [42b]

However, there seem  to be a number of more basic constraints
on these head nouns.  Between them these go a long way towards ex-
plaining both the lack of partitives (otherwise unexplained by
Jackendoff) and the ungrammaticality of forms like (183).  It is
impossible to do justice to this claim since there are a great
number of irregularities in this area, and we merely indicate
where, in general, the solution seems to lie, knowing that there
are counter-examples to the generalizations proposed here.

First, observe that few nouns in these classes can appear
with an indefinite article if they have cases on them--even if no
genitive has been formed.  In fact Jackendoff cites some relevant
examples:

(185) *a repudiation of a heretic          [18a]

(186) *a width of a finger                 [18d]

It is not immediately relevant that we can get a sentence like (187) unless we could also get (188)--which has a Dative case (animate object) on <u>execution</u>, like (183.a), and is, like the latter, ungrammatical.

(187)  I should not like to witness an execution.

(188) *I should not like to witness an execution of a criminal.

This effectively excludes one environment that must avoid postposing since these nominals must not be indefinite when they bear cases.  When the head noun appears with a definite article only, as in <u>the assassination of a president</u>, this can only lead to <u>the president's assassination</u>, and prevents postposing anyway; so the remaining question is whether it is possible to obtain forms like (189)-(192).  If so, any genitive formed from them would be expected to undergo postposing.

(189) *The assassination of the president that I witnessed.

(190) *The height of a building that was measured by this
           architect.

(191) *The execution of a notorious criminal that took place
           yesterday.

(192) *That destruction of a village that John saw on
           television.

These vary in acceptability but for many speakers all are excluded. Some find forms like (191), with an indefinite object, rather better. But these are irrelevant anyway since they are presumably automatically prevented from forming genitives by whatever constraint is needed to exclude (193.a) in favor of (193.b).  (We discuss this again in section E.)

(193) (a) *We were surprised by a new saint's canonization.
       (b)  We were surprised by the canonization of a new
              saint.

Thus, there appear to be independently motivated ways of preventing postposed genitives from forming on these nouns:  the necessary

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environments simply ·do not occur. Coupled with restrictions on pluralization which also apply (cf. ??the heights of the buildings, *the canonizations of the saints), these constraints will derivatively prevent the formation of partitives, but we are not specially concerned with that here.)

There seems to be a small class of examples which cannot be explained in this way. In (194) Washington can be the object of portrait. This is an impossible interpretation for (195), both (a) and (b):

(194)   Some of Washington's portraits show him as a
        young man.

(195) (a) *Some portraits of Washington's show him as a
            young man.
      (b) *The portraits of Washington's that I like best...

We have no explanation of (195.b) since portrait can be indefinite and can take a relative clause even when it has cases. However, (194) occurs, and the partitive analysis is no better able to explain (195.a).

The fourth and last claim regarding the partitive analysis is that it accounts for the fact that indefinite NP's cannot appear in postposed genitives such as (196). This it does by relating them to (197), the equivalent partitive, which is also ungrammatical. It was proposed by Jackendoff that genitives within a partitive be limited to those with definite articles.

(196) *a daughter of a farmer's          [44a]

(197) ?one of a farmer's daughters       [48a]

However, as he notes, (197) is much better than (196) and in fact there are numerous examples in which the correlation quite breaks down. The following should be equally acceptable according to the partitive analysis, but they are not, and in general partitives seem much better able to accommodate the indefinite article in the genitive NP than are postposed genitives.

(198) * $\begin{Bmatrix} \text{those} \\ \text{the} \end{Bmatrix}$ books of a certain old man's that he had

        kept since his youth.

(199)   those of a certain old man's books that he had kept
        since his youth

While we do not know how these facts are to be accounted for, we
do not find that they provide any support for the partitive analy-
sis.  It is in general very much more difficult to find acceptable
genitives having an indefinite article, and this is not
limited to postposed ones.

We may summarize the preceding discussion thus:  Jackendoff's
claims turn out to have far less motivation than he argued for.
Moreover, the most significant of the observations that were sup-
posed to support his position (the first one dealt with above)
tends in fact to throw doubt on the partitive analysis since it is
possible to account for the constraints on postposed genitives
more naturally by means of an alternative explanation.  We shall
now consider further evidence against the partitive analysis, which
increases the likelihood that the alternative derivation of post-
posed genitives discussed above is (in essence) correct.

**Before introducing this evidence, however, we have**
to admit that there is a rather strong argument for relating
partitives and postposed genitives which Jackendoff did not even
consider.  When two morphologically and syntactically similar
forms are close paraphrases of each other, this constitutes good
prima facie evidence for deriving them from the same source.
Consequently, in so far as (200.a) and (200.b) mean the same, it's
likely that they have a common source.

(200) (a)  Some of our antiques were damaged in the truck.
      (b)  Some antiques of ours were damaged in the truck.

These two sentences are indeed very close in meaning and we must
continue to regard this fact as rather serious counter-evidence
to our proposal.  Yet there are aspects of the relation between
these sentences which should be interpreted in favor of deriving
(200.a) and (200.b) from different sources.  There is a very
important difference between them.  The first, a partitive, pre-
supposes that it is common knowledge that we have antiques.  The
second does not.  In general we do not assume that transformations
never change meaning.  (See CASE PLACE.)  Therefore, a difference
in meaning as slight as this, may seem to be little justification
for arguing that (200.a) and (200.b) differ in deep structure.
Nevertheless, the difference observed here is exactly what would
be predicted if the former had a definite article on antiques
somewhere in the deep structure, while the second was essentially
indefinite.  Our analysis provides precisely this distinction,
while the partitive analysis does not.

This same difference appears in even more striking ways in the following:

> (201) (a)  Some of Mr. Smith's teeth fell into the bath.
>       (b) ?Some teeth of Mr. Smith's fell into the bath.

Although (201.a) is always acceptable, (201.b) cannot be used with the sense of the genitive derived from a case. Consider (202) and (203) in the light of this. <u>Great grandparents</u> seems unable, like <u>teeth</u>, to occur as an indefinite with a postposed genitive, although <u>friends</u> can.

> (202) (a) *two great-grandparents of his
>       (b)  two friends of his

Cf.

> (203) (a)  two of his great grandparents
>       (b)  two of his friends.

We can see no clear syntactic explanation of these facts. However, in each of the unacceptable sentences the whole set of relevant objects (<u>teeth</u> and <u>great-grandparents</u> respectively) is quite clearly limited in extent. It is at least plausible to argue that this requires the use of a partitive. The strangeness of (201.b) and (202.a) would then be regarded as of the same order as the strangeness of using the sentence <u>?One book on the table is damaged</u>, where the complete set of books in question is a matter of common reference. The normal sentence (for the intended meaning) would be <u>One of the books on the table is damaged</u>. This, like (201.a) and (202.b), uses a partitive.

Notice that whereas (203.b) implies that "he" has more than two friends, (202.b) does not. This, again, is what one would expect if we were dealing with a partitive and an indefinite NP respectively, since the partitive requires a set larger than that to which immediate reference is being made.

Our last example of this type of meaning difference is (204).

> (204) (a)  During the meeting we considered some proposals
>            of John's about widening various roads.
>       (b)  During the meeting we considered some of John's
>            proposals about widening various roads.

There are in fact a great number of subtle differences between these sentences, depending in part on whether the <u>about</u> clause is

read non-restrictively or not, and on which occurrence of pro-
posals in the partitive that clause is supposed to go with.
(See DET for some related problems.) Our main claim here, how-
ever, is that (204.a) requires no assumption about whether John
made other proposals but that (204.b) implies either that John
made other proposals about widening roads or that he made others
that were not about widening roads, depending on whether the
about clause is on the lower or higher NP (respectively) or the
partitive. It would take too long to show why, but this is
exactly what is predicted by deriving (204.a) from one indefinite
NP containing proposal, (204.b) from a partitive.

We turn now to the second kind of evidence against the
partitive analysis. There are good grounds for supposing that we
need a rule to postpose genitives in any case, and if that turns
out to be true it is better to generalize this rule than to add
to the grammar the extra mechanism required to obtain the other
postposed genitives from partitives. At one point, Jackendoff
mentions the phrase:

    (205)   that nose of his     [21]

and points out that "we clearly don't want preposing to take
place" in such a phrase. This is presumably to avoid that his
nose, or something of the sort. The discussion of (205) precedes
the proposal to derive postposed genitives from partitives and in
fact no effort is made in the paper to incorporate demonstratives
into the general account. Ordinary deictics could well be
incorporated, as we have shown. (E.g. (182).)
However (205) does not contain an ordinary demonstrative, and
there is no partitive with a meaning anywhere near that of (205).
Consider two similar examples:

    (206) (a)  Those eyes of Lucinda's often lead her into
            trouble!
        (b)  I dislike that ill temper of his.

Just what those and that are in these forms we do not know, but
it is clear that (1) there is no related partitive like *those
eyes of Lucinda's eyes from which to derive (206.a), and (2)
whatever those is, postposing of the genitive could be made to
follow from the generalization proposed above (p. 79), that
genitives may remain preposed only if the article contains no
more than [+Def], provided those and that violated that condi-
tion. There is at least no evidence against those and that
being dominated by the Article. They seem like articles yet they
are not just definite. Though this argument depends on few
forms, and though the latter are relatively little understood,

the conclusions seem quite indisputable:  we need a rule postposing
genitives.  Once this is admitted it is necessary to justify very
thoroughly any proposal to apply constraints that prevent the rule
from applying to similar constructions.  The arguments for the
partitive analysis must as a result be that much stronger in order
to be accepted--and we have called them in question on a number
of counts.

## 2.  Constraints on the Formation of Genitives

Three rules produce genitives:  the Active and Passive Sub-
ject Placement rules and the Possessive Formation rule.  The first
two are described in detail in CASE PLACE; however there are a
number of conditions which must be placed on these rules when they
apply in NP's, and those conditions were not dealt with there in
any detail.  The Possessive Formation rule is not to be taken too
seriously, as it stands, as we explained earlier, but whatever
form the rule takes, conditions of the sort discussed here must be
imposed.  If it turns out that possessives should be generated
directly in the Determiner some may have to be stated as output
conditions; otherwise it is likely that the account that follows
would apply to any rule for obtaining possessives.  Some of the
conditions discussed in this section may well result automatically
from such factors in the grammar as rule ordering, but we simply
impose them arbitrarily on the rules themselves.

It is worth pointing out that in so far as the constraints
discussed here apply specifically where nouns and not verbs are
at the head of the relevant construction, they represent one of the
ways in which surface dissimilarities between S and NP arise.  In
this grammar there are, of course, no deep structure subjects; by
imposing conditions, like those dealt with here, on the transfor-
mational section of the grammar, we are able to represent S and
NP as highly similar in structure in the base.  It is therefore
an interesting question (to which we have no answer) whether
constraints like those proposed here can be more adequately
motivated than constraints on desentential derivations of NP's
and on base rules for S and NP.

Finally, notice that when any string fails to meet a positive
condition it is anticipated that the original (case or relative
clause) form will turn up at the surface.  For example, if,
contrary to fact, the top Determiner had to be [+Definite] then
the rule would fail to apply to a case structure like <u>an arm of</u>
<u>the man</u>, but we should nevertheless expect this string to appear
at the surface.  In other words, the conditions discussed here

are simply conditions on the formation of (preposed) genitives.
(They do not apply to the formation of gerunds.)  Because the
conditions inhibit the formation of preposed genitives, they
affect the distribution of postposed genitives, too.

(a)  Conditions on Determiners

(i)  The Determiner of the top NP

If we had accepted the partitive analysis of postposed
genitives we should need to impose on all three rules for forming
genitives a condition allowing them to apply only if the "top"
Determiner contained a [+Def] Article and neither demonstrative
nor relative clause appeared in that NP.  An arm of the man and
a book that is John's would never form genitives.  Something like
John's book would be a simple genitive, allowed by this partitive
condition, while a book of John's would introduce the genitive by
means of the lower (partitive) NP which would itself be John's
book.

We have given our reasons for rejecting the partitive solu-
tion and therefore need not consider this condition in detail.
However, notice that if we had needed to impose it, this would
have introduced a new argument against using the predicate
genitive as the source for possessives.  We suggested that ?The
book that is John's is odd for the same reason that ?The book that
is green is unsatisfactory:  there is a shorter, preposed form.
But whereas ?a book that is green becomes a green book, ?a book
that is John's would have to remain un-preposed if the top
Determiner had to be [+Def], and our "explanation" of the oddness
of the un-preposed forms would fall away.  However, since we pre-
pose all genitives and later postpose the genitives from a John's
book this particular objection falls away.

(ii)  The Lower Determiner

At least in true action nominals there seems to be a require-
ment that the lower determiner be definite:

(207) (a) *The girls were disturbed by a man's sudden
          appearance on the balcony.
      (b) The girls were disturbed by the sudden appearance
          of a man on the balcony.

(208) (a) *A young vandal's destruction of the fence
             annoyed Mr. Jones.
      (b)  The destruction of the fence by a young vandal
           annoyed Mr. Jones.

(209) (a) *A little child's canonization surprised us.
      (b)  The canonization of a little child surprised us.

As (209) shows, this condition applies to the Passive rule, as
well as the Active one.

It does not apply to the same extent to other nouns, neither
the Subject Placement rules nor Possessive Formation being
inhibited in this way for them, as the following show.  It
is interesting that in some cases a generic rather than indefinite
reading tends to be given to the genitive.

(210) (a)  A student's mother came to see me.
      (b)  A little girl's arm had just been hurt.
      (c)  An old man's portrait of his daughter was
           accepted for the exhibition.
      (d)  A dark-skinned chinaman's portrait hung near
           the door.
      (e)  One boy's interest in astronomy took him as far
           afield as Mt. Wilson.
      (f)  A little girl's candy had spilt on the floor.

As far as this condition goes, it is necessary only to extend
whatever condition tends to prevent indefinite NP's from forming
the subject of a sentence, so that it applies also to true action
nominals--which of all the constructions falling under this dis-
cussion are most like sentences.  We do not in fact incorporate
that condition in CASE PLACE and consequently generate (207.a), (208.a)
and (209.a).

(b)  Conditions imposed by Definite Pronouns

Just as with sentences, NP's do not easily tolerate a definite
pronoun in the by NP Agentive phrase:

(211) (a) ?the execution of the criminals by him
      (b) ?the criminals were executed by him

(212) (a) ?the portrait of swans by him
      (b) ?the portrait was painted by him

This, like the constraint discussed in connection with (207) and
(208), may well be connected with the conditions under which
topicalization is allowed, but we have not tried to account for
such conditions in this grammar and therefore do not deal with
this one in the rules.

There is another constraint which, if it applies to genitive-
forming rules, must apply only to the Active Subject Placement
rule, and only when it operates within NP.  Consider the following:

(213) (a) *The arrival of him pleased the others.
      (b)  His arrival pleased the others.

(214) (a) *The arm of him was broken.
      (b)  His arm was broken.

(215) (a) *The denunciation of him by Cicero.
      (b)  His denunciation by Cicero.
      (c)  Cicero's denunciation of him.

(216) (a)?? The  portrait of him (by Rembrandt)
              A
      (b)  His portrait (by Rembrandt)
      (c)  Rembrandt's portrait of him

Judging only by (213) and (214) it would seem that a Dative
must necessarily prepose if it is a definite pronoun and the only
case on the noun.  However (215) suggests that the condition is more
complicated.  In (215.a) an animate object has been formed,
presumably from the Dative case again.  The first preposing rule
that could apply to this string is the Passive.  If it applies,
(215.b) is produced.  But the Passive is optional.  If it does
not apply, (215.a) is left.  Usually in NP's the Active rule is
also optional, but in this instance it must obligatorily apply, to
yield (215.c).  Thus there seems, in fact, to be a condition
on the Active rule, which makes it obligatorily apply to whatever
NP it would normally move, just in case there is a Definite pronoun
under a case (perhaps necessarily Dative case).

It is not clear how far this constraint extends.  (216.a) does
not seem too bad, for example.  In the other direction, it would
be easy to have the rule cover examples (211.a) and (212.a).  How-
ever, at least in this grammar, it is necessary that there be a
suitable condition on the rules of pronominalization, since
obviously those rules follow the genitive forming rules.  Conse-
quently the latter would have no way of recognizing derived pro-
nouns at the stage when genitive formation takes place.  To

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achieve the right effect it might seem possible to block pro-
nominalization of the NP immediately after the head of a nominal
construction (probably excluding (216)).  Since, however, we
generate definite pronouns in the base, we cannot simply have a
condition on the Pronominalization rule,  but would have to
formulate an output condition.  This may well be an artifact of
this particular grammar and we do not take the trouble to propose
a precise formulation of any condition that would account for
(213) - (216).

(c)   Conditions Depending on Animous

It has often been observed that animate NP's form genitives
far more easily than inanimates do.  In some way it is necessary
to block:

      (217) (a)  *our house's picture
           (b)  *the picture's destruction by a maniac
           (c)  *the table's leg

Instead, we get the un-preposed case forms:

      (218) (a)  the picture of our house
           (b)  the destruction of the picture by a maniac
           (c)  the leg of the table

This constraint is not absolute and seems to vary from speaker to
speaker.  For example, speakers seem to vary considerably in their
judgments of the grammaticality of (219):

      (219) (a)  the water's edge
           (b)  ?the building's height
           (c)  ?the food's distribution

Whatever form the conditions may take in order to account adequately
for this data, they must be such that the previous condition,
which requires preposing of an NP if it is a definite pronoun,
can take precedence over the present condition:

      (220) (a)  I estimate its height at about 200 feet.
           (b)  Although you have the book back, many of its
               pages are now torn.
           (c)  It's destruction by a maniac surprised us all.

Not:

(221) (a) ?I estimate <u>the height of it</u> at about 200 feet.
(b) *Although you have the book back, many of <u>the pages of it</u> are now torn.
(c) *<u>The destruction of it</u> by a maniac surprised us all.

On the other hand, there is no genitive relative pronoun for inanimates, and we find (222) rather than (223).

(222)  The book, the cover of which had been torn, was found outside.

(223) ??The book, whose cover had been torn, was found outside.

Inanimates never form possessives. (That much seems semantically clear, at least.) And we have argued in CASE PLACE that for nouns the Passive rule applies only to Datives (= Animate Objects).

(d)  A Condition on Plural Subjects

We noticed, in connection with (b) above, that indefinite NP's do not easily form genitives. When the genitive NP is plural but the head is singular, the result is very considerably worse:

(224) (a) *some men's racehorse
(b) *those books of some expatriate English authors'

It is not, however, impossible to find a plural indefinite genitive on a plural head, or to find plural definite genitives, as in the following examples (respectively).

(225) (a)  some men's racehorses
(b)  the children's go-kart

We do not know anything more about this singularly odd constraint.

(e)  Length Constraints

There is some kind of constraint imposed by the length of the potential genitive:

(226) *The man who lives on the corner's books

It is not clear how this could be stated but it is presumably
stylistic in origin.  Notice that the constraint applies equally
to predicate genitives:

(226') *That book is the man who lives on the corner's.

The fact that in general all constraints apply equally to predicate
genitives and other genitives—including those derived from cases—
makes it seem likely that if the predicate genitive is the source
of possessives the constraints on genitives are all output condi-
tions, sensitive only to the genitive and its dominating NP if
relevant.


3.  The Origin of of NP

That there is a relationship between genitives and of NP
following the head noun has often been noticed.  It has not
generally been very clear what sort of relationship was involved,
since for many common genitives the corresponding of NP form is
ungrammatical.

(227) *a book of the boy

We have proposed, in CASE PLACE, a number of ways of deriving of NP
but only two concern us here.  On the one hand, this form may
represent an "object" of the N, coming from a deep structure
Neutral or Dative case by a rule inserting of after objectivaliza-
tion has deleted the original preposition.  On the other hand, it
may result from the rule which changes the preposition of any single
case left to the right of the head N to of.  In both instances,
of NP originates in a case and has never been a genitive—though
the deep structure from which it has been derived may be eligible
to form genitives which will paraphrase it.

This represents a claim that any of NP (of the classes we have
been dealing with) comes from a case rather than an embedded rela-
tive clause (i.e. passive).  In the clear instances this seems to
be correct.

There are at least three other possible sources for of NP.
We do not discuss these in detail here, but there appear to be
good arguments against the following:

1. Certain genitives postpose to form <u>of NP</u> losing the genitive marker as they move.

2. The genitive marker deletes from certain postposed genitives.

3. The form <u>of NP</u> is a partitive of some sort (e.g., in <u>the arm of the man</u>) from which genitives can form.

Jackendoff's account of <u>of NP</u> does not follow any of (1)-(3) above, but runs into difficulties which appear to be quite typical of any account that fails to distinguish between possessives and other genitives. In order to exclude (227) he has to make genitive formation obligatory.

For further discussion of the origin of <u>of NP</u> see CASE PLACE.

4. Miscellaneous Problems

a. The Predicate Genitive

If the predicate genitive is basic, it is necessary, as we mentioned above in section D, to constrain it in complex ways. If it is not basic, suitable conditions must be placed on deletion and/or subject placement rules in order to secure the right output. The fact that many predicate genitives (e.g. <u>Those books are John's</u>) appear not to be definite but in some way generic (cf. <u>He is a carpenter</u>) is not easy to imagine handling under any deletion analysis.

b. Article Deletion

It might seem that given our analysis of genitives we require a rule to delete the article just in case the genitive remains preposed, for then we have a definite article which, on the preliminary breakdown given in example (167') precedes the genitive, thus:

(228)  the (John's) book
           ⇓

       John's book

However, it will be seen from CASE PLACE that the subject placement rules attach the genitive NP to ART, leaving the existing feature(s) still attached to that node as well. If the genitive NP is post-posed, only the ART features remain, to give (by second lexical lookup) such forms as a book of John's, and the book of his that I lost. If, however, the genitive remains attached to ART, the resulting structure looks something like (229).

(229)
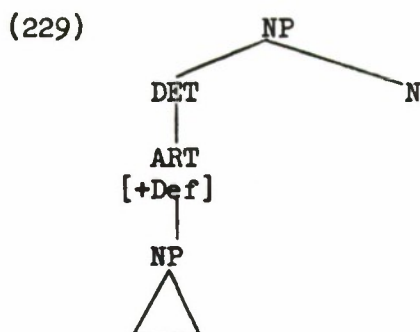


The second lexicon is unable to read the feature [+Def] and there is no surface form.

c. Pronoun Suppletion

Consider the following two sentences:

(230) (a)  John took his book and Mary took hers.
     (b)  Mary took her book and John took his.

In PRO it is argued that hers in (a) comes from:

(her book $\Rightarrow$ ) her one $\Rightarrow$ hers .
                        [+PRO]

Now her has come in a sense from her, itself [+PRO], which arises by a similar process form:

(Det one $\Rightarrow$ )  she one $\Rightarrow$ she .
$\begin{bmatrix} +III \\ +Fem \\ \vdots \end{bmatrix}$          [+PRO]

It is not at all clear how we can distinguish her and hers (and similar suppletive pronominal forms) unless the second lexicon is sensitive to structured sets of features or to the number of occurrences of a feature on a node. Thus, at present, her and hers are distinguished by the time of the second lookup simply by the

fact that <u>hers</u> dominates <u>two</u> occurrences of the feature [+PRO],
acquired by the two processes of ONE-DELETION. Nowhere else have
we made use of such a device and we are unwilling to do so here.
We do not, however, have an alternative to propose.


F.  Problems not Discussed

1.  The relation between genitives and true compounds like:

    (229)  table-top, chair-leg, river-bank, door-handle

2.  The relation between the genitives discussed in the paper and
such compound genitives as:

    (230) (a)  (new) [gentlemen's clothing]
          (b)  a big [boy's bicycle]
          (c)  some [butcher's aprons]
          (d)  a ladies' man

3.  The following genitives:

    (231) (a)  a summer's day
          (b)  the journey's end
          (c)  yesterday's paper

    It is probable that (c) at least has an adverbial origin.
It is interesting that there are sentences having such adverbs as
<u>yesterday</u> in surface subject position, such as <u>Yesterday saw the
beginning of a new quarter at school.</u>  These facts may be related.


IV.  TRANSFORMATIONAL RULES

    All the rules of CASE PLACE are relevant. They are assumed,
and not repeated here. In addition, the following are required:

1.  Possessive Formation (Optional)

S.I.  $_{NP}[\ _{NP}[X\ ART\ X\ N\ X]_S[NP\ BE\ \underset{[+Dative]}{NP}\ ]\ ]$

    1     2   3  456   7  8    9

S.C.  (1)  Attach 9 to 3
      (2)  Erase 7, 8, 9
      (3)  Add [+Genitive] to 3

Conditions

    (1)  3 does not dominate NP
    (2)  7 dominates [+THAT]

Note:

    (1)   The genitive output of this rule is quite parallel to that of the Subject Placement rules (q.v.).

    (2)   Must precede Rule 2, genitive postposing.

    (3)   The five conditions of E.2 are relevant but they appear to be output conditions rather than rule specific.

2.   Genitive Postposing (Obligatory)

    S.I.   $_{ART}$[ NP$_{[+Genitive]}$ ] X N X

          1     2      3  4  5

    S.C.  (1)  Attach 2 as right sister of 4
          (2)  Delete 2

Conditions

    (1)  1 ≠ [+Def]  (Note:  This is understood strictly:  if 1 dominates anything in addition to [+Def] the rule does not apply.)
    (2)  3 does not directly dominate NP

Note

    (1)  <u>of</u> will be inserted between the resulting N and NP by the very general <u>of-insertion</u> rule (see CASE PLACE). Thus it is assumed that ?<u>the book by Mailer of John's that I am reading</u> is generated, if at all, by a later scrambling rule (which we do not give). The output of GEN-POSTPOSE would be <u>the book of John's by Mailer that I am reading.</u>

Examples

A.  Grammatical

    (232) (a)  a book of his
          (b)  the proposal of his that you are thinking of
          (c)  that nose of his

B.  Ungrammatical - excluded

    (233) (a)  *the bicycles of hers
          (b)  ?that [announcement to the creditors] of the chairman's

# CLEFT AND PSEUDO-CLEFT

## Contents

# CLEFT AND PSEUDO-CLEFT

## I. BIBLIOGRAPHY

### A. Cleft

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    English"
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    Constructions

## II. INTRODUCTION

This presentation has four primary objectives:  (1) to pro-
vide an elucidation of the syntactic restrictions of the cleft
and pseudo-cleft constructions, (2) to demonstrate the many
similarities of the two constructions, (3) to survey critically
the generative analyses thus far proposed, and (4) to suggest a
new approach to the analysis of cleft and pseudo-cleft construc-
tions in light of (1)-(3) above.

As one can infer from the bibliography, very little has
been written on clefting and pseudo-clefting from a generative-
transformational point of view.  For this reason and because
there are some questions about when constructions should be
considered cleft and pseudo-cleft, a section on the question
of what constitutes an occurrence of each of these constructions
has been included (III.A.1-4 and IV.A.1-4).

The two phenomena are first presented in separate, parallel
sections to allow their independent study while simultaneously

facilitating their comparison. Comments peculiar to one or the other construction follows the parallel comments in each section. Following the introductory orientation, annotation and critique of previous generative proposals are given. Our suggested approach, along with what we consider to be evidence for that approach, concludes the presentation.

## III. CLEFT SENTENCES

### A. Data-Oriented Observations

The following remarks and examples are intended to give an awareness of the various structures which undergo clefting and those which must be restricted and excluded.

### 1. Constituents Which Can Be Clefted

Non-constituents can not be clefted. The following examples illustrate the constituents which can be clefted.

(a) NP's can be clefted.

    (1)  (a)  Rachel cried. ⟹ It was Rachel who cried.
         (b)  Mark saw Rachel. ⟹ It was Rachel who Mark saw.
         (c)  Mark saw Rachel. ⟹ It was Mark who saw Rachel.

(b) The structures which the clefted NP dominates are practically unlimited, i.e., they have little effect on the clefting operation.

    (2)  (a)  NRRel:  It was Bill, who seems anemic, that I was worried about.
         (b)  RRel:  It was the man with the red coat who stopped me.
         (c)  ADJ:  It was that big oaf who stepped on my foot.
         (d)  POSS:  It was Sam's book that got torn up.
         (e)  POSS-ING:  It was John's coming home early that caused problems.
         (f)  FOR-TO:  ?It is to come home late and not find dinner ready that bugs me.
         (g)  THAT-S:  ?It was that Bill was prejudiced that I ignored.

[Cf. Section III.A.3 on dubious clefts for those examples with question marks.]

(c)  The head of a postposed genitive phrase may generally be clefted.

> (3)  (a)  It was a handkerchief that Mary wanted of Sue's.
>       (b)  It was a hammer that John took of mine.

This suggests that the head of a genitive phrase is in some way a separate NP.

(d)  When a prep accompanies the NP, there are restrictions on clefting (cf. see III.A.1 (i)) but many NP's can be pulled out of prep phrases.

> (4)  (a)  It was Bill that John relied on.
>       (b)  It was the exam that Sue cried about.
>       (c)  It was Bill that John gave the money to.
>       (d)  It was Sam that Evelyn came with.
>       (e)  It was a hammer that Ruth broke the window with.

(e)  Whole prep phrases may be clefted.  Their functions may be quite diverse.

> (5)  (a)  It was about Esther that Marcia gossiped.
>       (b)  It was with a stick that Bill killed the rat.
>       (c)  It was to the store that Peter went.
>       (d)  It was for fun that Bonnie and Clyde held up the bank.
>       (e)  It was for 3 years that Bill lived on that island.
>       (f)  It was at 3 o'clock that school let out.
>       (g)  It was in school that Harry learned to succeed.
>       (h)  It was with anticipation that Martha waited.

Some clausal constructions (which might be analyzed as prep-phrases) undergo clefting while others don't.  Perhaps a difference in PS configuration or a semantic restriction is responsible.

> (6)  (a)  It was only while his boss watched that John worked fast.
>       (b)  It was only after prolonged prodding that the calf moved into the chute.
>       (c)  It was because John begged that I approved his petition.
>       (d)  It was in spite of John's begging that I rejected his request.

(7) (a) *It was although John begged that I rejected
          his petition.
    (b) *It is if he comes that I'll scream.

(f) Some adverbials having neither NP nor prep phrase structures
may be clefted in some dialects.

(8) (a) It was suddenly that the ghost appeared.
    (b) It is eagerly that I await your arrival.
    (c) It was yesterday that he decided to quit.

In short, NP's, prep phrases, and a few single word adverbials
may undergo clefting.

2.  Restrictions On Cleftable Constituents

    There are numerous restrictions which must be placed on the
constituents which can undergo clefting.  Some of the following
are mentioned in Lees (1963).

(a) One of a series of conjuncts can not be clefted.

(9) (a) *It was John that I saw and Bill.
    (b) *It was Elizabeth that and Norma went home.

Likewise, NP's and prep phrases within a conjunct can not be
clefted.  (cf. Ross's (1967c) Coordinate Structure Constraint)

(10) (a) *It was Sam that slept and Bill ate.
     (b) *It was Ruth that Mary slept and ate.
     (c) *It was with his wife that Bill danced and Mark
            wrote a letter.

(b) A preposed genitive may not be clefted.

(11) (a) *It was Sue's that Mary wanted the handkerchief.
     (b) *It was the airplane's that the landing gear
            stuck.

(c) In case grammar terms, the cases following N can not be split
off when the head is clefted (in contrast to contiguous locative
modifiers of the VP which can not be juxtaposed to a clefted NP).

(12) (a) He read the preface to the book.
     (b) It's the preface to the book that he read.
     (c) *It's the preface that he read to the book.
     (d) *It's to the book that he read the preface.

(13) (a)  He read the preface to his wife.
     (b)  *It's the preface to his wife that he read.
     (c)  It's the preface that he read to his wife.
     (d)  It's to his wife that he read the preface.

(d)  Indefinite pro-forms are not usually clefted.  It seems likely that this may be a semantic disqualification since one of the functions of clefting is emphasis of an item.

(14) (a)  *It was something that John wanted.  (as clefts)
     (b)  *It wasn't anything that Mike saw.

Definite pro-forms (i.e. pro-forms which are overtly indefinite but in some way definitized semantically) are quite all right as clefted items.

(15) (a)  It was you who said that.
     (b)  It was something new that Sue wanted.

(e)  Sentences containing even, scarcely, only, etc. can not be clefted.

(16) (a)  *It is even John who likes old cars.
     (b)  *It is John who even likes old cars.
     (c)  *It was even old cars that John sold.

It seems to be the case that the discourse function of these adverbs is mutually exclusive with the function of clefting.

(f)  The subject within a THAT-S construction may not be clefted, but if the that is absent, clefting is permissible.

(17) (a)  John believes that Bill likes tea.
     (b)  *It is Bill that John believes that likes tea.
     (c)  It is Bill that John believes likes tea.

The object in a THAT-S construction is not so restricted however.

(18) It is tea that John believes that Bill likes.

This fact could be accounted for in the rules by placing a restriction on the cleft transformation that the variable preceding AUX in an embedded complement S not contain X + that (cf. NOM IV. and REL VI.A. for a fuller discussion of this type of restriction.)

(g)  Sentence adverbs can not be clefted.

     (19) (a) *It was obviously that the theorem was true.
         (b) *It is probably that Mary went ice skating.

(h)  Intensifying adverbials can not be clefted.

     (20) (a) *It was very that John was tired.
         (b) *It was very that Ramon noticed the groundhog
             quickly.

(i)  When the NP to be clefted has a prep accompanying it, there are three positions in which the prep is found when the NP is clefted.

    First, the prep may accompany the clefted NP.

     (21) (a)  It was about marriage that Sue was discouraged.
         (b)  It was on the davenport that Sue slept.

    Second, the prep may remain while only the NP is clefted.

     (22) (a)  It was marriage that Sue was discouraged about.
         (b)  It was the davenport that Sue slept on.

    Third, the prep may be fronted in the S from which the NP is clefted and then it precedes the WH-linker.

     (23) (a)  It was marriage about which Sue was discouraged.
         (b)  It was the davenport on which Sue slept.

[Note that the latter two possibilities are also present with RRel clauses.]

    Various adverbial uses of prepositional phrases place restrictions on which of the above positions are possible.  The examples given above allow all three positions.  Many prep phrases disallow the second and third prep positions, i.e., they require the prep to remain with the NP when clefted.

     (24) (a) *It was the morning that I got up in.
         (b) *It was the morning in which I got up.

     (25) (a)?*It was 3 years that Bill lived on the island for.
         (b) *It was 3 years for which Bill lived on the island.

     (26) (a) *It is Chicago that they hold the meetings in.
         (b) *It is Chicago in which they hold the meetings.

(27) (a) *It was hand that I climbed the rope by.
    (b) *It was hand by which I climbed the rope.

(28) (a) *It was fun that Bill held up the bank for.
    (b) *It was fun for which Bill held up the bank.

(j)  Prep phrases which can optionally delete their prepositions
(i.e. Datives and Benefactives which undergo objectivalization)
require the preposition when clefted.  The preposition need not,
however, move in all cases.

(29) (a) *It was John that Bill gave the pencil.
    (b) It was to John that Bill gave the pencil.
    (c) It was John that Bill gave the pencil to.
    (d) It was John to whom Bill gave the pencil.

(30) *It was Mary that Sue bought the book.

(31) It was John who was given the pencil (by Bill).

(32) ?It was John who was bought the book (by Bill).

(k)  Clefting out of the predicate of a copular sentence has idio-
syncratic restrictions.

Predicate nominals can not be clefted.

(33) (a) *It is a conductor that John is.
    (b) *It is Mary who the salesgirl is.

Some NP's in a predicate prepositional phrase can be clefted
if the preposition is not clefted too.

(34) (a) It was the train that John was on.
    (b) *It was on the train that John was.

Some prep phrases can not be clefted at all.

(35) (a) *It was on time that Bill was.
    (b) *It was time that Bill was on.

3.  Dubious Restrictions On Clefting

(a)  We have seen that a preposed genitive can not be clefted.
It appears that some postposed genitives can be clefted while others
can not.  While there is a special linker <u>whose</u> operating for animate

NP's, there is none for inanimates. This may be the source of greater queasiness about the second pair of sentences.

(36) (a) It is the big man with the laundry bag whose shoes are dirty.

(b) It was Hannibal whose men rode in high style.

(36')(a) ?It was the car with blue pinstriping whose hubcaps Bill liked.

(b) ?It was the tennis racket whose handle broke.

(b) It may be questioned whether NP's may be clefted without a RRel which accompanies them. If grammaticality does not disallow it in the following example, unclarity of interpretation does make it somewhat unacceptable.

(37) (a) The kid who has long sideburns passed out.

(b) ?It was the kid that passed out who has long sideburns.

(c) It is rather uncertain whether FOR-TO and THAT nominalizations can be clefted. Some sentences seem definitely ungrammatical while others are better. One might explain this phenomenon by invoking Ross's (1967c) "Completely Enclosed S" output condition (p. 57, 3.27) in which he states that grammatical sentences containing an NP (1) which is both preceded and followed by non-null parts of that sentence and (2) which exhaustively dominates S, are unacceptable. Thus, a structure of the form (38) is unacceptable, though grammatical.

(38)

```
                           S
           ___-----------------------___
        X  .  .  .  NP  .  .  .  Y
                    |
                    S
```
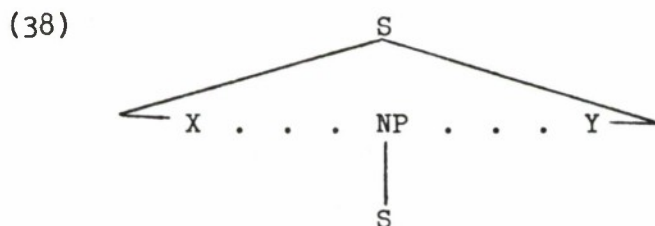
where X and Y are non-null

In dialects which find all of 39-41 unacceptable, such a solution would account for all but (39.c-d) where the embedded S is presumably pruned before surface structure because it does not branch. However there is considerable disagreement about the data and we have no explanation for those dialects which accept anything but (39.c) and (39.d). The relevant $_{NP}[S]$ structures are underlined in the examples.

(39) (a)   FOR TO:  *It is <u>for you to come early</u> that
                     everyone prefers.

     (b)            *It is <u>for John to represent us</u> that
                     I intended.

     (c)          ?*It was <u>to pay the bill</u> that Sam
                     wanted.

     (d)         ??It is <u>to come home early and find</u>
                     <u>myself locked out</u> that irritates me.

     (e)         ?It is <u>for you to find me this way</u> that
                     embarrasses me.

(40) (a)   THAT:  *It was <u>that John should represent us</u>
                     that I decided.

     (b)          *It was <u>that Bill liked tea</u> that John
                     believed.

     (c)         ?It was <u>that you came early</u> that surprised
                     me.

     (d)         ?It was <u>that you would go</u> that they doubted.

(41) (a) *It was the boy that that Bill is 65 amazed.

     (b) *It was that she was guilty that that she left
         proved.

## 4. Constituents Which Can Not Be Clefted

    There are some constituents which are very clearly restricted
from undergoing clefting. Among them are the following.

(a) Elements which occur in the AUX.

    (42) (a)  Preverbs: *It is almost that the theorem is true.
        (b)           *It is scarcely that Bill has a chance.

    (43) (a)  Modals: *It is must that Bill try harder.
        (b)         *It is may that Bill finish early.

    (44)     NEG: *It is not that Sue baked a cake. (as a
            cleft)

    (45) (a)  Have, Be: *It was was that John running all day.
        (b)          *It was has that John run all day.

(b) Particles

    (46) (a) *It was back that he sent the letter.
        (b) *It was down that the man hosed the deck.
        (c) *It was up that the woman ran the bill.

(c)  Conjunctions, Articles, Postarticles, Adjectives, ...

(d)  Nouns

     (47)  *It was pencil that I gave Bill a.

(e)  Standard American English does not allow V's or PROP's to be clefted.

     (48)  (a)  *It was hit that John did (to) Bill.
          (b)  *It was know that John ? the answer.
          (c)  *It was sleep that John did through supper.
          (d)  *It was be that John tired.

     (49)  (a)  *It was hit that Harry did.
          (b)  *It was know the answer that John did.
          (c)  *It was sleep through supper that John did.
          (d)  *It was be tired that John ?.

5.  Phrase Structure Implications

    We turn now to a consideration of the mutual implications of clefting and the PS rules.

(a)  The structure underlying clefting must in some way provide for the possibility of two Modals, one in the THAT-S and one with the COP.

     (50)  (a)  It may have been Dick who couldn't make up his mind.
          (b)  It might be the tent that we should leave behind.

(b)  The relationship of clefting to negation is a complex one. We only draw the outlines here.

    First, clefting seems to be a way in which NP's can be unambiguously negated in English (functioning somewhat like contrastive stress).  Viz.,

     (51)  (a)  Bill didn't steal the light bulb.
          (b)  It wasn't Bill who stole the light bulb.

    Second, when the clefted item is negated, there is always either (A) an implied affirmative S following or (B) an implied affirmative S preceding the negative cleft.  Let us look at case (A) and then (B).

The implied S may be (a) a declarative sentence, (b) another cleft sentence, or (c) but followed by a structure parallel to the constituent clefted in the first sentence. Viz.,

(52)  It wasn't John who spilled the milk.

(53) (a)  Mary did it.
     (b)  It was Mary (who spilled it).
     (c)  but Mary.

When the affirmative S precedes the negative cleft, it may be of either type (a) or (b) above.

(54) (a)  Mary spilled the milk.  [It wasn't John (who spilled it).]
     (b)  It was someone else who spilled the milk.  [It wasn't John .../]

Note that the constituent of the declarative S's paralleling the clefted constituent has special stress.

Third, there may be a series of negated S's tied to a series of affirmative S's (either preceding or following).  The reader can reduce the following examples:

(55) (a)  It wasn't Mary who spilled the juice and it wasn't John who broke the glass.  It was Sue who did them both.
     (b)  It was Sue who typed my papers.  It wasn't Sally and it wasn't Jane.
     (c)  It wasn't the man's tie that bothered Bill. It was his shoes and it was his coat.
     (d)  It was at Luigi's that the spy met the blond (and it was at Celso's that he met the brunette). It wasn't at the bridge and it wasn't at the museum.

[Note that a mixture in ordering of affirmative and negative S's suggests a pair of cleft constructions or an afterthought.]

In order to make this implicational relationship explicit, one might postulate deep structure sentences of the type specified above for each cleft sentence.  The underlying structure would thus consist of a pair of sentences, one affirmative and one negative and the transformation could choose one, erasing the other in the clefting operation.  In a sentence-grammar, such a solution would be unacceptable, as the contrasted deleted item could not be

recovered. What we are dealing with, apparently, is a case of
implication of the type which can only realistically be handled
by a grammar adequate to handle presupposition and contextual and
intentional reference, as well as implication and other facts of
true discourse. For the purposes of such a grammar, it appears
that the implicational relationships here discussed would have to
be taken into account.

(c)  The clefting operation must not be allowed in imperatives.
(Note our treatment of Imp as SJC.  Cf. IMP)  That is, SJC in the
top S excludes the possibility of clefting.

> (56) (a)  Keep the change.
>      (b)  *It was the change that keep.

Clefting may occur lower in the tree, however.

> (57) (a)  Promise that it will be the scissors that
>           you'll return.
>      (b)  Notice that it is clefting that is operating.

(d)  There must be TNS agreement between the copula and the verbal
of the WHAT-S.

> (58) (a)  It was John that you saw.
>      (b)  It is John that you see.
>      (c)  It will be John that you'll see.

> (59) (a)  *It was John that you see.
>      (b)  *It was John that you'll see.
>      (c)  *It is John that you saw.
>      (d)  *It will be John that you saw.

> (60) (a)  It is John that you'll see.
>      (b)  It will be John that you see.

Note that (60.a,b) are found in most dialects.  Though both "present"
and "future" implications appear in their surface sentences, [-PAST]
underlies both of these.

6.  Ordering Of Clefting With Respect To A Few Other Transformations
(assuming that cleft is not on a higher cycle)

(a)  Clefting may be after <u>conjunction reduction</u> since conjoined
NP's may be clefted.  Alternatively, <u>conjunction reduction</u> might
operate on pairs of clefts.

(61) (a)  It was Harry and Sam that tipped over the outhouse.

(b)  It was on Monday and Tuesday that I had salami sandwiches.

(b)  Clefting is after reflexivization since reflexive (and perhaps reciprocal) NP's may be clefted, thus placing the reflexive NP to the left of its antecedent.

(62) (a)  It was himself that John was concerned about.
(b)  ?It was each other that Bill and John respected.

(c)  Clefting is before questioning since clefted S's may undergo both yes/no and WH questions.

(63) (a)  Is it a toothbrush that you need?
(b)  Who was it that said such a terrible thing?

(d)  Clefting and pseudo-clefting are mutually exclusive on the same cycle.

(64) *It was John that what Bill did was hit.

7.  Distinction Of Cleft-Like Constructions

To avoid confusion, it is important that we sort out the superficially similar structures which appear much like cleft sentences.

(a)  The anaphoric it may appear in a string having exactly the same morphemes and order as the cleft it, viz.,

(65)  It is money that I need.

The two different constructions which merge in (65) are easily distinguished, however.  Lees has noted (1963, p. 382) that in the sentence with the anaphoric it (66.a) the primary stress is on need while in the cleft usage (66.b) the primary stress is on money. Note that this result is obtained from the Nuclear Stress Rule (Chomsky and Halle, 1968) since in (66.a) money that I need is a single constituent and primary stress is applied to the rightmost constituent, whereas in (66.b) money and that I need are separated by a constituent break.  The difference between the two structures is clarified by context, as in (66) below:

(66) (a) What money is that?  It's money that I need.
     (b) What do you need?  It's money that I need.

Moore (1967, p. 137) has added the fact that only the anaphoric it can be replaced by the deictic pronouns this and that.

(67) (a) What money is that?  That is money that I need.
     (b) What do you need?  *That is money that I need.

Furthermore, only the anaphoric it sentence can have non-agreement in the TNS, viz.,

(68) (a) What money was that?  It was money that I need.
     (b) What did you need?  *It was money that I need.
                             *It is money that I needed.

(b)  Under all of the following analyses except Klima's, there is a second it which may also be distinguished from the cleft it. This is variously called the "expletive it" (Langendoen), the "impersonal it" (Lees), the "Pronoun it" (Rosenbaum), the "antici-patory it" (Curme), and the "introductory it" (Kruisinga).  This it replaces an extraposed NP.  For further details see NOM.  Notice that the impersonal it construction does not undergo the WH transformation.

(69) (a) It worried [+WH,-DEF] ONE that John left.
         (Impersonal it)
     (b) *Who worried it that John left?
     (c) *Who was it worried that John left?

while the cleft it construction does.

(70) (a) It was [+WH,-DEF] ONE that John left.  (Cleft)
     (b) Who was it that John left.

B.  Review of Analyses

1.  Simplex Analysis

The simplest type of analysis of the cleft sentence would be one involving only a simplex sentence.  Both Lees (1963) and Moore (1967) suggest and reject simplex analyses.  Lees suggests the following operations such an analysis might involve.

(a)  Select a nominal or adverbial constituent Z and attach WH to it.

(b)  Front the WH-Z combination.

(c)  Introduce the sentence by a main clause consisting of IT-BE-Z.

(d)  Allow morphophonemic rules to change WH-Z to who, which, where, etc.  [Lees, 1963, p. 375]

A sample derivation follows:

(71) (a)  You want WH- the book.
     (b)  WH- the book you want.
     (c)  It is the book WH- the book you want.
     (d)  It is the book which/that you want.

And from a sentence like:

(72)  Sam read the review in the train.  [Moore, 1967, p. 123]

one could derive:

(73) (a)  It was Sam that read the review in the train.
     (b)  It was the review that Sam read in the train.
     (c)  It was in the train that Sam read the review.

There are several problems that such an analysis raises.

First, there is evidence that the AUX's and preverb modifiers of the two verbals of cleft S's are independent (except for TNS). This demands a dual sentence source.

(74) (a)  It wasn't John who didn't turn in his reg packet.
     (b)  It is not the wife who never decides.

(75)  It must have been the wife who could always decide.

Second, the semantic component would be required to give the same reading to all three sentences of (73) since they have a common deep structure source unless this were regarded as another case of attachment transformations determining meaning, or unless the structure underlying (73.a-c) were claimed to be three structures identical to the deep structure of (72) except for some kind of emphasis, focus, or topic marker.

Third, the <u>it</u> which is inserted by the transformation must be dominated by NP to allow the tag question transformation to operate after the clefting. This would build structure in a way that we would not like to permit.

(76) It was John that read the book, wasn't it?

Furthermore, the entire result of clefting must be an S to allow its operation in embedding.

(77) (a) It surprised me that Bill read the review.
(b) It surprised me that it was Bill that read the review.

The remaining four analyses propose two sentences underlying each cleft sentence. The first two assume that IT is introduced in the PS rules; the last two that IT appears as the pro-form of an N.

2. Predicate Relative Clause Analysis (Polutzky)

According to Lees recapitulation, H. J. Polutzky (1960) suggested that the two sentences underlying the cleft sentence (78.a) are (78.b) and (78.c).

(78) (a) It is the wife who decides.

(b) It is the wife.

(c) The wife decides.

(78.c) is embedded in (78.b) by the relative clause transformation.

Against this analysis Lees has raised three types of objections.

(a) The underlying sentences are not always available as sources. Thus, the matrix sentence of:

(79) It was of him that I asked it.

would have to be:

(80) *It was of him.

There are also sentences in which the constituent S can not undergo the relative transformations as it stands. Thus,

(81) (a)  It was in the drawer.
     (b)  I put it in the drawer.

do not combine by the relative transformations to give:  (82.a)
but (82.b):

(82) (a)  It was in the drawer that I put it.
     (b)  It was in the drawer that I put it in.

(b)  There are strong ties between the two sentences involved in
clefting which suggest a more than casual relationship.  Lees'
first tie--number agreement--is spurious since that would also be
required in the relative source.  The second tie is tense agreement.
Thus,

(83) (a)  It is the boys who are naughty.
     (b)  It was the boys who were naughty.

but not:

(84) (a)  *It is the boys who were naughty.
     (b)  *It was the boys who are naughty.

Obviously this is not an argument applicable only to the predicate
relative analysis.  Lees' own analysis (below) requires a special
condition to capture the fact of tense agreement.  The third tie is
the correlation between preceding reflexives and following nouns.

(85) (a)  It was for himself that he did it.
     (b)  *It was for himself that they did it.

Assuming that the relative clause could be extended to handle prep
phrases, this third tie would also be handled by reflexivization
in the embedded S.  In sum, the objection (b) is practically
weightless.

(c)  It is difficult to consider that a relative pronoun since in
many clefts, there is no obvious antecedent of the type found in
relative clauses.

(86)  It was only by dint of great effort that he proved it.

3.  Cleft Complement Analysis (Lees)

     The analysis which Lees proposed (1963) involves an ad hoc
phrase structure rule acting as a trigger for the cleft transformation.

Converting his two-sentence framework into the present formalization, two sample derivations follow.

(87) (a)   It AUX BE $_S$[the wife decides]

   (b)   Cleft $\Longrightarrow$ It AUX BE $_S$[the wife WH-the wife decides]

   (c)   Equi-NP Del + morphophonemics $\Longrightarrow$ It is the wife who decides.

(88) (a)   It AUX BE $_S$[I saw him there]

   (b)   Cleft $\Longrightarrow$ It AUX BE $_S$[there WH-there I saw him]

   (c)   Equi-NP Del + morphophonemics $\Longrightarrow$ It was there that I saw him.

Thus, a special phrase structure configuration is generated, upon which only the cleft transformation will operate. The cleft transformation follows WH-attraction and fronting and operates to duplicate the attracted constituent and change WH-X into a proper pro-form.

Most of the difficulties Lees had noted in the Predicate Relative Clause analysis (above) are avoided in the Cleft Complement Analysis; however, new difficulties arise.

Moore (1967) suggested that an _it_ derived in the base failed to capture the intuition that _it_ is a replacement for an NP.

More seriously, the addition of a unique PS rule to trigger an obviously language-specific transformation has little to commend it.

Third, the idiosyncratic nature of the solution disallows the possibility of relating cleft and pseudo-cleft.

4.   Impersonal Inversion Analysis (Klima)

According to Lees (1963), Klima proposed extending Lees' "It-inversion" transformations to account for cleft sentences. The It-inversion transformation (Lees (1960a), p. 94) corresponds to Rosenbaum's extraposition transformation and provides for sentences like: "That John left bothers me" $\Longrightarrow$ "It bothers me that John left". Thus, underlying the cleft sentence of (89) is a sentence like (90) employing a factive nominal as subject.

(89)  It is the wife who decides.

(90)  Who decides is the wife.

This proposal has the drawback of requiring ungrammatical source sentences.  The sentences in (91.a-c) must come from the corresponding forms in (92).

(91) (a)  It was for kicks that she rode the roller coaster.
     (b)  It was to him that I gave the book.
     (c)  It is very frequently that she shows up late.

(92) (a)  *Why she rode the roller coaster was for kicks.
     (b)  *Where I gave the book was to him.
     (c)  *How often/when she shows up late is very
           frequently.

Second, in cases where the initial interrogative-like clauses are possible, they seem to be reduced relative clauses and not factive nominals.  Compare (93) with (94).

(93) (a)*?Where I found the knife was near him. ⟹
     (b)  It was near him that I found the knife.  (cleft)

(94) (a)  Where I found the knife was obvious. ⟹
     (b)  It was obvious where I found the knife. (extrapos)

(93) suggests (95) as its source while (94) does not.

(95)  The place in which I found the knife was near him.

Third, it is not obvious that (90) and (92) can even be considered factive nominals.

5.  Subject Relative Clause Analysis (Moore)

Taking Lees' observation about reduced relatives as a starting point, Moore (1967) suggests that all cleft sentences have as a source a copulative sentence with an NP, including a restrictive relative, as subject and a nominal as predicate.  The restrictive relative has a pro-form as head.  The relative transformation operates on the subject, which is then extraposed and replaced by the pro-form it.  A special cleft transformation then inserts that be as left daughter of the transposed subject.  Assuming that the TNS's are identical one may then optionally delete that BE D + Pro.  Some sample derivations follow. [Moore, 1967, p. 120].

(96) (a)  $_{NP}$[the #one read the review# one]$[_{COP}$was]$[_{NP}$Sam]

(b)  rel $\Rightarrow$ $_{NP}$[the one who/that read the review]
$[_{COP}$was]$[_{NP}$Sam]

(c)  extra $\Rightarrow$ $[_{COP}$was]$[_{NP}$Sam $[_{NP}$the one who/that read
the review]]

(d)  IT repl $\Rightarrow$ $[_{NP}$It]$[_{COP}$was]$[_{NP}$Sam $[_{NP}$the one who/that
read the review]]

(e)  THAT BE $\Rightarrow$ $[_{NP}$It]$[_{COP}$was]$[_{NP}$Sam $[_{NP}$that was the
one who/that read the review]]

(f)  THAT BE N DEL $\Rightarrow$ $[_{NP}$It]$[_{COP}$was]$[_{NP}$Sam $[_{NP}$who/that
read the review]] (optional)

(97) (a)  $_{NP}$[the #Sam read the review in the place# place]
$[_{COP}$was]$[_{NP}$the train]

(b)  rel $\Rightarrow$ $_{NP}$[the place (in) which Sam read the review
(in)]$[_{COP}$was]$[_{NP}$the train]

(c)  extra $\Rightarrow$ $[_{COP}$was]$[_{NP}$the train $[_{NP}$the place (in)
which Sam read the review (in)]]

(d)  IT repl $\Rightarrow$ $[_{NP}$It]$[_{COP}$was]$[_{NP}$the train $[_{NP}$the place
(in) which Sam read the review (in)]]

(e)  THAT BE $\Rightarrow$ $[_{NP}$It]$[_{COP}$was]$[_{NP}$the train $[_{NP}$that was
the place (in) which Sam...]]

(f)  THAT BE N DEL $\Rightarrow$ $[_{NP}$It]$[_{COP}$was]$[_{NP}$the train $[_{NP}$(in)
which Sam read the review (in)]]

Moore contends that this analysis avoids the previous problems since (1) _it_ replaces an NP (and therefore allows interrogation without node building), (2) the whole sentence continues as an S (allowing embedding without node building), and (3) two separate AUX's are provided (allowing double negatives and modals). Further, the claim is made that _it_ is the regular replacement of an extraposed $[NP]_S$ when the NP dominates an S. That is, the same process is at work in factive nominals and cleft.

It is difficult to see how the first contention stands since the whole NP (including the node NP) is extraposed. _It_ easily replaces the NP but how does it get dominated by NP?

Note also that the insertion of THAT BE is immediately followed by its deletion. Its insertion seems motivated simply by the desire to provide a source for a paraphrase.

One attractive feature of the proposal is its incorporation of the pseudo-cleft construction. The pseudo-cleft is simply one early stage in the derivation of the cleft. Thus, (99) may be reduced immediately to the pseudo-cleft of (100) or may by the steps above become the cleft of (101).

   (99)  The thing #Sam read something# was the review

   (100) What Sam read was the review.

   (101) It was Sam that read the review.

We shall note when considering the pseudo-cleft analyses that this derivation of the pseudo-cleft raises its own problems. However, Moore's solution makes the first (and only) step toward combining two constructions having many similarities.


IV.  PSEUDO-CLEFT SENTENCES

A.  Data-Oriented Observations

    A major difficulty in working with the pseudo-cleft is the delimitation of its domain. Some writers have restricted the constituent which can be pseudo-clefted to NP. Others have opened the sluice gate wider, apparently not aware of the deluge which follows. The first five analyses we will consider have dealt solely with NP's. We shall wade tentatively into the deeper waters as we note representative data.

1.  Delimiting the Pseudo-Cleft Construction

    This section will present three constructions which seem on the surface to be pseudo-clefts.

(a)  Pseudo-clefted NP's

This first construction, featuring WHAT plus an S out of which an NP has been moved to predicate nominal position, is accepted by all writers as pseudo-clefting.  Let us note several characteristics of the construction.

(1)  The constituents under an NP seem to have little bearing on its ability to undergo pseudo-clefting.

| | | | |
|---|---|---|---|
| (102) | (a) | NRRel: | What Bob saw was the book, which had a tear in it. |
| | (b) | R Rel: | What Bob saw was the book with the red cover. |
| | (c) | ADJ: | What Liz admired was the huge Gutenberg Bible. |
| | (d) | POSS: | What hit John was his stupidity. |
| | (e) | | What the lecturer resented was a criticism of Bill's. |
| | (f) | POSS-ING: | What frustrates Sam is his failing the language exam. |
| | (g) | | What proved that she was guilty was her leaving. |
| | (h) | FOR-TO: | ?What frustrates Sam is for him to come home and not find a check in the mail. |
| | (i) | | ?What would prove that she was guilty would be for her to leave. |
| | (j) | THAT-: | ?What Bill hated was that John left. |
| | (k) | | ?What proved that she was guilty was that she left. |

[Cf. the section IV.A.3 on Dubious Pseudo-Clefts for those questioned above.]

(2)  The element functioning as head of a genitive phrase with a postposed genitive may be clefted.

(103)  What John took of mine was a hammer.

This would suggest that the whole genitive construction is an NP. Note that the preposed genitive can not be pseudo-clefted.

(104)*What John took my was a hammer.

(3)  Just as in the cleft construction, there is TNS agreement between the copula and the verbal of the S.  This fact is most obvious with the nominalizations.

(105) (a) *What Bill hated is that John leave.
      (b) *What Bill hated is for John to leave.
      (c) *What Bill hates was John's leaving.

(106) (a) What he saw was a book.
      (b) What he sees is a book.
      (c) What he will see will be a book.

Some apparent counterexamples follow in (107), where (a), (e), and (i) are included for comparison.

(107) (a) What he saw was a book (three days ago).
      (b) What he saw is a book (new).
      (c) What he saw will be a book (three days from now).
      (d) What he sees was a book (three days ago).
      (e) What he sees is a book (now).
      (f) What he sees will be a book (three days from now).
      (g) What he will see was a book (three days ago).
      (h) What he will see is a book (now).
      (i) What he will see will be a book (three days from
          now).

Note that the cleft counterparts to (106) are fine but the counterparts to (107) (except (a), (e), and (i)) are ungrammatical (as clefts).

The sentences in (107) are only apparent counter-examples for this reason: pseudo-cleft sentences have an identificational function. In (107) a predication is being made about the state or condition of the item referred to in the subject. That is, the sentences have much the same force as:

(108) What I touched quivered. [= The thing that I touched quivered.]

In other words they contain subjects on which there are relative clauses, and are not the result of pseudo-clefting at all.

(4) When the pseudo-clefted NP is negated there is an implied affirmative sentence. If the affirmative sentence precedes, it may be a simple declarative (a), a cleft sentence (b), or a pseudo-cleft sentence (c).

(109) (a) The bat hit Sam. What hit Sam wasn't the ball.
      (b) It was the bat that hit John. What hit John
          wasn't the ball.
      (c) What hit John was the bat. What hit John wasn't
          the ball.

If the affirmative sentence follows, all of the above three may appear and in addition <u>but</u> followed by an NP parallel to the pseudo-clefted NP may occur.  As in the cleft, here we are pointing out facts, not making the obviously false claim that in a sentence grammar these implied sentences are in the deep structure.  (Cf. Sec. III.A.5 for further discussion).

> (110)  What hit John wasn't the ball.

> (111) (a)  The bat hit him.
>       (b)  What hit John was the bat.
>       (c)  It was the bat that hit John.
>       (d)  but the bat.

(5)  When nominalizations are pseudo-clefted, their surface forms may differ in grammaticality from corresponding unclefted forms.

> (112) (a)  What I want is that he leave.
>       (b)  *I want that he leave.

> (113) (a)  What I want is for him to leave.
>       (b)  *I want for him to leave.

We have not accounted for this phenomenon.

(b)  Pseudo-clefted Cases (prep phrases)

A second construction, which is of dubious grammaticality, is similar to the first but has various WH forms and a wider range of predicates (including prep phrases).  TNS agreement is maintained. Their negation also implies a juxtaposed affirmative sentence. Some examples follow.

> (114) (a)  Where John slept was downtown/in a haystack.
>       (b)  ?When I saw him last was at 3 o'clock.
>       (c)  ?How he escaped was with a hacksaw.
>       (d)  ?Why Sam read the review was because he was
>              interested in it.
>       (e)  ?Who she wants to be seen with is the right
>              people.
>       (f)  ?Whose house is on fire is theirs.
>       (g)  Whether John left was the issue.

Note that <u>whether</u> will require a reduction from something like <u>the question whether</u>.

These sentences seem to be structurally parallel to the NP pseudo-cleft constructions.  We note only their dubious grammaticality and the fact that their cleft counterparts are perfectly grammatical.

(c)  Pseudo-clefted PROP's

A third set of sentences which are normally not considered a part of pseudo-clefting but which seem to undergo a very similar operation involve what appears to be the pro-ing of the PROP.  There is no restriction on the number of NP's in the PROP, i.e., "transitives" and intransitives work equally well.

  (115) (a)  What John did was throw the paper through
      the window.
    (b)  What Carol did was sleep.

It is possible to leave a copy of parts of the PROP unextracted, viz.,

  (116) (a)  What the mouse did was eat the cheese with its
      paws.
    (b)  What the mouse did with the cheese was eat it
      with its paws.
    (c)  ?What the mouse did with the cheese with its paws
      was eat it.

Note that some constituents must obligatorily be copied into the pseudo-clefted PROP while others are only optionally copied there. Pronominalization can then take place too.

  (116') (a)  What the mouse did with the cheese was eat it.
    (b)  *What the mouse did with the cheese was eat.
    (c)  ?What the mouse did with the cheese with its
      paws was eat it (with them).

The specification of the preposition of cases which are left in the uncleft PROP requires special consideration, as is suggested by (117).

  (117) (a)  What the mouse did with the cheese was eat it.
    (b)  What the mouse did to the cheese was eat it.

There are restrictions on the PROP's which can be pseudo-clefted.  PROP's which have passive subjects, stative verbs, and verbs not having an "effectum" relationship (cf. Fillmore, 1967a) to their object may not be pseudo-clefted.  Presumably this is because no suitable pro-form of the verb is available.

(118) (a) *What the paper was done was thrown through the
window by John.
(b) *What Dick did was know the answer.
(c) *What John did to the table was build it.

A PROP which has a passive subject can not be pseudo-clefted,
apparently because the pro-form DO may not be passivized.

(119) (a) The back of the chair was fixed by Bill.
(b) *What the back of the chair was done was fixed
by Bill.

Likewise, a pseudo-clefted NP can undergo the Inversion transforma-
tion while a pseudo-clefted PROP probably can not.  Compare:

(120) (a) What was bothering Susie was the spider.
(b) The spider was what was bothering Susie.
(c) What Sam did was put another notch in his gun.
(d) ?Put another notch in his gun was what Sam did.

This seems to be nothing more than a simple restriction on the Inver-
sion transformation.

We must also account for the ungrammaticality of (121.f).

(121) (a) What the mouse did was eat the cheese. $\Rightarrow$
(b) What the mouse did with the cheese was eat it.
(c) What the mouse did to the cheese was eat it.
(d) What Bill did was give the book to John. $\Rightarrow$
(e) What Bill did with the book was give it to John.
(f) *What Bill did to the book was give it to John.

2.  Restrictions On Pseudo-Cleftable Constituents

(a)  An NP which is a conjunct can not be pseudo-clefted.

(122) (a) *What I noticed and doves was parakeets.
(b) *What I noticed parakeets and was doves.

This obeys Ross's (1967a) conjunct movement constraint.  Similarly,
a constituent of a conjunct can not be pseudo-clefted, but it isn't
clear that Ross's constraint will apply here, since it is not obvious
that anything is moved <u>out</u> of the first conjunct.

(122') (a) *What John bought was a watermelon and Bill bought
a canteloupe.
(b) *What went flat was a tire and the radiator leaked.

(b)   A preposed genitive may not be pseudo-clefted.

> (123) (a) *What the landing gear was stuck was airplane's.
>    or  (b) *What landing gear was stuck was the airplane's.

(c)   The cases on a head noun may not be left behind when the noun is pseudo-clefted.

> (124) (a) *What he read to the book was the preface.
>       (b)??What he read by James was a book.  (as pseudo-cleft)

This suggests that nothing lower than NOM may be pseudo-clefted.

(d)   The pseudo-cleft operation does not apply to some sentences containing even, scarcely, only, etc.

> (125) (a) *What Bill collects is even U.S. stamps.
>       (b) *What Bill only collects is U.S. stamps.

Note the following however, in which the relevant word is in the what clause.

> (125') (a)  What even Bill collects is trading stamps.
>        (b)  What John scarcely passed was the French exam.

(e)   Within THAT-S constructions, the subjects can not normally be pseudo-clefted while objects can.

> (126) (a) *What John believes that causes waste is machines.
>       (b)  What John believes (that?) machines cause is waste.

> (127) (a) *What John believes that is caused by machines is waste.
>       (b)  What John believes (that?) waste is caused by is machines.

Note the same phenomenon with subject and locative.

> (128) (a) *What John believes that grows on trees is tea.
>       (b)  What John believes that tea grows on is trees.

As in the cleft, when that is deleted, any of the NP's may be pseudo-clefted.

(129) (a) What John believes causes waste is machines.
(b) What John believes is caused by machines is waste.
(c) What John believes grows on trees is tea.

[Cf. Sec. III.A.2.(f) for discussion of parallel examples in clefting, as well as an account (of sorts) for the phenomenon.]

(f) Animate NP's can not be pseudo-clefted with the pro-form <u>who</u>.

(130) (a) *Who Bill saw was John.
(b) *Who Nancy stole for was her mother.
(c) *Who was seen by the police was the criminal.

All of these sentences must be prefaced by <u>the one</u> to make them grammatical.

As Peters and Bach (1968) point out, animate NP's can sometimes be pseudo-clefted, e.g.

(131) (a) What Bill saw on the horizon was Mary.
(b) What concerned John was Mary.

One might suppose that in sentences of this type the animate NP is considered an object, i.e., it is treated as inanimate. Thus, much the same thing is happening as in:

(132) James Bond broke the window with the Russian.

where the Russian is an instrument, but while there is some motivation for presupposing instrumentals are [-Animate], there appears to be no independent motivation for doing so in the case of (131).

A second explanation is proposed in the consideration of Peters and Bach's analysis. Cf. III.B.2.

3. Dubious Restrictions On Pseudo-Clefting

(a) We have noted above that a preposed genitive can not be pseudo-clefted. There is some uncertainty however regarding postposed genitives.

(133) (a) ?What Bill liked the hubcaps of was the car with the blue pinstriping('s).
(b) ?What the handle of broke was the tennis racket('s).

The restriction is enhanced when an animate NP is pseudo-clefted (contrast the cleft parallel).

     (134) *Whose shoes are dirty is the big man('s).

(b)   There is some uncertainty about whether a R Rel can be split off it head when the head is pseudo-clefted.

     (135) (a)  ?What John shot which had a magnificent tail was
              a coon.
         (b)  ?What Billy likes which has black spots is a
              snake.

(c)   There are curious restrictions on pseudo-clefting complements which have FOR-TO and THAT nominalizations as deep structure subjects.

     (136) (a)  $_{NP}$[For her to leave] would prove $_{NP}$[that she
             was guilty].
         (b)  [That she left] proved [that she was guilty].
         (c)  [Her leaving] proved [that she was guilty].
         (d)  [That she left] proved nothing.

     (137) (a)  ⇏ *What for her to leave would prove would be
             that she was guilty.
         (b)  ⇏ *What that she left proved was that she was
             guilty.
         (c)  ⇏ What her leaving proved was that she was
             guilty.
         (d)  ⇏ What that she left proved was nothing.

4.  Constituents Which Can Not Be Pseudo-Clefted

    There are a number of constituents which can not be pseudo-clefted. Some of them are: Preverbs, Modals, NEG, HAVE, BE, Particles, Conjunctions, Articles, Postarticles, Adjectives, Nouns, etc.

     (138) (a) *What the fish is rotten is almost.
         (b) *What a table is shiny is should.
         (c) *What the paper tore easily is not.
         (d) *What the water running was was.
         (e) *What the pencil broken was has.
         (f) *What/where/how the woman ran the bill was up.
         (g) *What the pencil was was green.
         (h) *What I gave Bill a was pencil.

5. Phrase Structure Implications

There are a few relationships pseudo-clefts have which bear directly on the PS rules.

(a) Provision must be made to allow modals to occur with either or both verbals in the pseudo-clefted S. Note the difference in meaning in pairs (139) and (140).

> (139) (a) What she wants may be spinach.
>       (b) What she may want is spinach.
>
> (140) (a) What she caught may have been a trout.
>       (b) What she may have caught was a trout.
>
> (141)  What she may need can't be LSD.

(b) Sentences with pseudo-cleft NP's must be permitted to have negation in one or both verbals; however, a contiguous affirmative sentence or a following contrastive but phrase seems to be implied in the discourse when the negative is on the clefted element.

> (142) (a) What John didn't like was the applesauce.
>       (b) What John liked was not the applesauce.
>
> (143) (a) What John didn't talk about was not the taxes.
>       (b) What Sue didn't like was not the applesauce.

[Cf. Sec. III.A.5 for a more detailed consideration.]

(c) Imperative constructions must be made mutually exclusive with pseudo-clefting on the last cycle. That is, when SJC is present in the top S (cf. IMP) pseudo-clefting can not operate on the last cycle.

> (144)  Buy the sled ⇏ *What buy is the sled.

Peremptory sentences (cf. IMP) can, however, be pseudo-clefted.

> (145)  You will buy the sled ⟹ What you will buy is the
>                                                sled.

Clefts may be embedded in an IMP sentence however.

> (146) (a) Forget that what you bought is a white elephant.
>       (b) Remember that what you seem to be is an honest
>           politician.

(d)  There must be TNS agreement between the copula and the verbal in the WHAT-S.  Cf. (105)-(108) for a discussion of this phenomenon.

6.  Ordering Of Pseudo-Clefting With Respect To A Few Other Transformations (assuming that Pseudo-cleft is not on a higher cycle)

(a)  Pseudo-clefting may follow conjunction reduction since pseudo-clefted NP's may dominate conjuncts.  Alternatively, conjunction reduction might operate on a pair of pseudo-clefts.

      (147) (a)  What I noticed was parakeets and doves.
           (b)  What I was fed up with was parakeets and doves.

(b)  Pseudo-clefting comes after Reflexivization

The reflexive transformation must precede the pseudo-cleft transformation unless reflexivization occurs on a lower cycle.

      (148) (a)  What Bill saw in the mirror was himself.
           (b)  What the missile damaged was itself.

(c)  Pseudo-clefting precedes the copula switch transformation since the copula switch transformation can apply to apparently all pseudo-cleft sentences.  It puts the clefted item first in the sentence followed by the copula and the remainder of the S.

      (149) (a)  What fell was the book.  $\Rightarrow$  The book was what fell.
           (b)  What she likes is applesauce.  $\Rightarrow$  Applesauce is what she likes.

Note the lack of restriction on transposing in comparison to simple copular sentences.

      (150) (a)  This is the apple. $\nRightarrow$ *The apple is this.
           (b)  This was what I saw $\Rightarrow$ What I saw was this.

      (151) (a)  The secretary is a fool. $\nRightarrow$ *A fool is the secretary.
           (b)  His secretary is what concerns her. $\Rightarrow$ What concerns her is his secretary.

(d)  Pseudo-clefting precedes Relative formation.

The relationship to Rel formation is tentative.  Since no NP may be pseudo-clefted out of a relative clause, there does not seem to be any reason to have relativization precede pseudo-clefting.  On the other hand, relativization can not occur using a pseudo-clefted NP as the identical N.

(152) (a)  John wanted the pie [what was in the refrigerator was the pie].
(b)  $\not\Longrightarrow$ *John wanted the pie which what was in the refrigerator was.

This suggests that we put relativization before pseudo-clefting. However, if the copula switch T has applied, the previously pseudo-clefted NP is free to be relativized.

(153) (a)  John wanted the pie [the pie was what was in the refrigerator].
(b)  $\Longrightarrow$ John wanted the pie which was what was in the refrigerator.

Thus relativization must come after pseudo-clefting.  A restriction possibly related to that which prevents predicate nouns from being relativized as in *the teacher that Bill is must then be placed on the relativization rule.

(e)  The question transformations follow pseudo-clefting.

(154)  Was what John wanted a match?

(f)  Clefting and pseudo-clefting must be made mutually exclusive within the same cycle.

(155) *It was John that what Bill did was hit.


B.  Review Of Analyses

1.  Simplex Analysis

This first analysis, which we shall call the simplex analysis, we have not been able to find in print. [Jacobs and Rosenbaum (1967a), p. 20, imply such a source but give no analysis.]  Apparently a single transformation would apply to an $S_1$ converting its P-marker into one like (156).

(156)
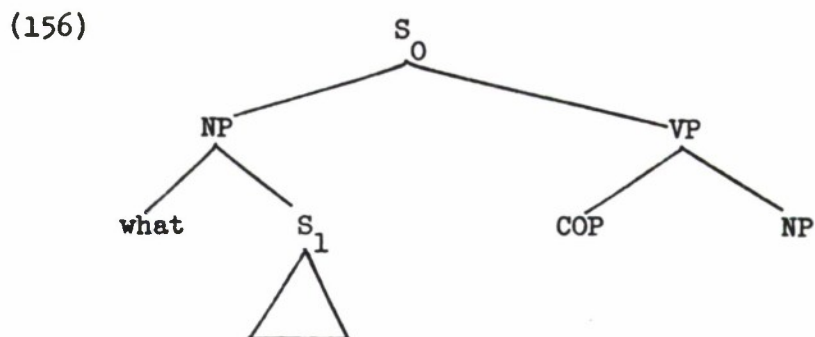


An appropriate NP is chosen in $S_1$ for pseudo-clefting. A new
sentence $S_0$ is created dominating $S_1$ via an NP. The VP of $S_0$
dominates COP and the NP removed from $S_1$. _What_ is made the left
sister of $S_1$.

The simplex analysis meets numerous difficulties, the first
of which is the need to use powerful structure-building transfor-
mations.

Second, the Modals of the sentences are apparently independent.

(157) (a)  What she can drink may be goat's milk.
      (b)  What he might have said, not done, may have been
           the _faux pas_.

Third, double negation may provide evidence for a two sentence
origin.

(158) (a)  What he won't eat isn't apples.
      (b)  What he didn't do is not the issue.

Fourth, there is the difficulty of choosing only NP's that
can actually be pseudo-clefted. Cf. Peters and Bach's (1968)
second attack on Extracting Analyses (see IV.B.2) for a full dis-
cussion of this point.

Fifth, no specification was made in the deep P-marker as to
which NP would be pseudo-clefted, a criticism which applies equally
to the extracting analysis (following).

2. Extracting Analysis (Chomsky, Peters and Bach)

Employing Peters and Bach's (1968) nomenclature, we next con-
sider the extracting analysis of the pseudo-cleft. Peters and Bach

characterize this analysis as assigning pseudo-cleft S's deep structures which (a) include exactly the deep structure of the corresponding uncleft sentences and (b) form the pseudo-cleft sentence by extracting the pseudo-clefted NP from its position in the uncleft S.

Chomsky (1968) suggests in passing one form an extracting analysis might take. He proposes a deep structure such as (159) for pseudo-clefts. [Chomsky, MS, 1968 (47)]

(159)
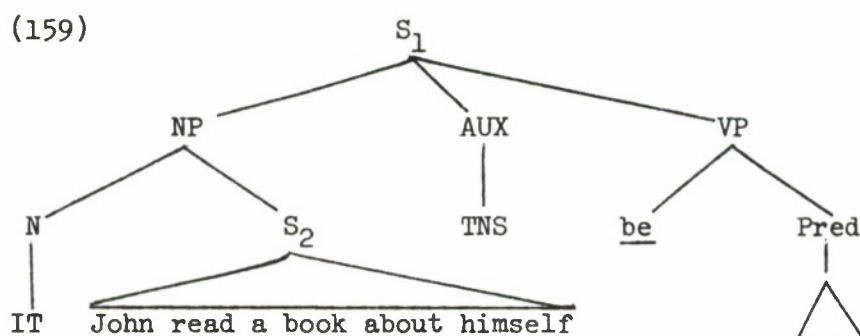


Some NP in $S_2$ is chosen to replace the unspecified Pred and that NP is replaced by the pro-form IT. The relativization transformation then operates on the identical IT's and a new rule changes IT-THAT to what.

Peters and Bach propose two slightly different forms of extracting analyses. The deep structure in both is identical to (159). The operations performed on it in the first form are the following. Some NP in $S_2$ is chosen to replace the unspecified Pred by attaching WH- to it. That NP is pro-ed by something. WH-something is then attracted to the front of the S and a morphophonemic T changes IT-WH-something into what. Peters and Bach's first attack on extracting analyses (pp. 2-3) is actually an objection to blocking symbols and is misleading and irrelevant. They argue that blocking symbols allow an incorrect (descriptively inadequate) account of the post-determiners main, chief, etc. and hence should not be used in the pseudo-cleft analysis and should be excluded from the metatheory. However, Peters and Bach do not show conclusively that blocking symbols cannot be appropriately constrained in use.

Peters and Bach's second argument against extracting analyses also runs into problems. They first (pp. 5-6) present evidence that the restriction on which NP's can be pseudo-clefted is not tied simply to animacy. They note sentences such as the following:

(160) $\left\{\begin{array}{l}\text{Mary} \\ \text{The news}\end{array}\right\}$ concerned John $\Longrightarrow$ What concerned John

was $\left\{\begin{array}{l}\text{Mary} \\ \text{the news}\end{array}\right\}$.

(161) John saw $\left\{\begin{array}{l}\text{Mary} \\ \text{the ship}\end{array}\right\}$ $\Longrightarrow$ What John saw was $\left\{\begin{array}{l}\text{Mary} \\ \text{the ship}\end{array}\right\}$.

(162) John amazed $\left\{\begin{array}{l}\text{Mary} \\ \text{*the ship}\end{array}\right\}$ $\Longrightarrow$ What John amazed

was $\left\{\begin{array}{l}\text{*Mary} \\ \text{*the ship}\end{array}\right\}$ .

Their observation is that only an NP which can be replaced by something in the unclefted S may be clefted.

They consider this devastating to all extracting analyses since after transformations like subject raising and passive have applied, it is impossible to tell if the NP extracted could have originally been replaced by something. However, some verbs allow, for example, both subjects which can be pro-ed by something and those which can't. Viz.,

(163) (a)  The mouse ate the cheese.
      (b)  Mary ate the cheese.

(164)  Something ate the cheese.

(165) (a)  What ate the cheese was the mouse.
      (b) *What ate the cheese was Mary.

The diagnostic something fails in all such cases.

The third problem which Peters and Bach point out for the extracting analysis concerns the place of semantic interpretation. If semantic interpretation is on the base then there is no way of indicating the difference in interpretation between the following pairs of sentences all of which presumably have the same base P-marker.

(166) (a)  What struck the house was lightning.
      (b)  What lightning struck was the house.

(167) (a)  Was it lightning that struck the house?
      (b)  Was it the house the lightning struck?

3.  Something Analysis (Peters and Bach, Kuroda, Moore)

A second type of analysis presented by Peters and Bach we shall call the Something Analysis.  It assigns pseudo-cleft sentences a deep structure similar to the following.

(168)



```
                          S₁
                 /                    \
               NP                      VP
             /    \                   /    \
            D      NOM              BE      NP
                  /    \                    /\
               NOM      S₂                 /  \
                                          /    \
           the  thing  John counted something  the pigeons
                       Something concerned John
```
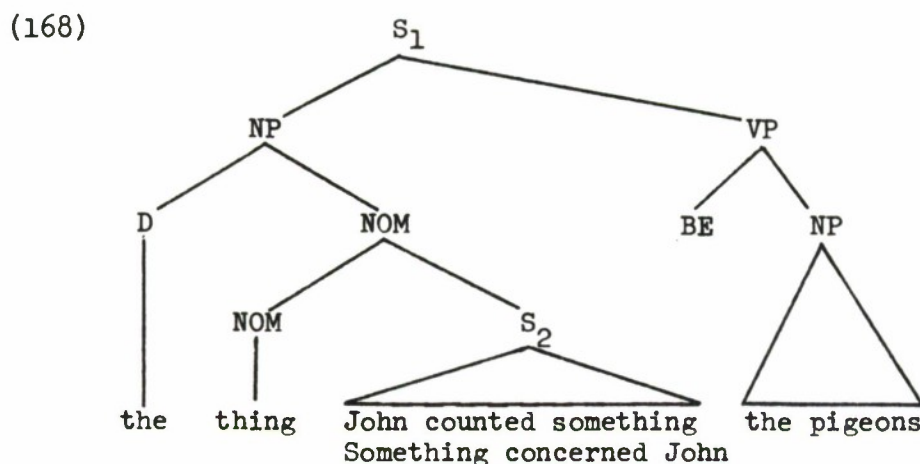
The relativization transformation applies to S₂ giving <u>the thing which/that</u> which is optionally converted into <u>what</u>.

This analysis avoids the problem of determining the pseudo-cleftability of the NP and shows the paraphrase relationship of <u>what</u> and <u>the thing which/that</u>.

Kuroda (1965a) implies an analysis very similar to the above. He refines the pro-forms used, however, and correlates <u>what</u> with <u>that which</u>.  The basic pro-form in S₂ is then SOME PRO.  The two possible derivations from (168) are as follows.

(169) (a)  THAT PRO #WH SOME PRO John counted# was the pigeons

      (b)  Def ⟹ THAT PRO #WH THAT PRO John counted# was the pigeons

      (c)  Pro  Del ⟹ THAT PRO #WH THAT John counted# was the pigeons

      (d)  WH amalg ⟹ THAT PRO #which John counted# was the pigeons

      (e)  Pro-ing ⟹ That which John counted was the pigeons

[The R Rel identity condition is met with PRO.]

(170) (a)  THAT PRO #WH SOME PRO John counted# was the pigeons
      (b)  Regr Del ⟹ #WH SOME PRO John counted# was the
           pigeons
      (c)  WH amalg ⟹ What PRO John counted was the pigeons.
      (d)  Pro-ing ⟹ What John counted was the pigeons.

Under Kuroda's analysis the thing which has the following derivation.

(171) (a)  the thing #WH SOME thing
      (b)  Def ⟹ the thing #WH THAT thing
      (c)  Prog Del ⟹ the thing #WH THAT
      (c)  WH amalg ⟹ the thing which

(It is not obvious how Kuroda plans to get the thing that.)

   Kuroda's analysis, in contrast to the Something Analysis, dis-
tinguishes the thing which from what and that which. This accords
well with the difference in paraphrase relations possible when the
clefted item varies in abstractness. For example:

(172) (a)  What/that which they laid aside was the
           tissue [-Abst].
      (b)  What/that which they laid aside was the
           issue [+Abst].

(173) (a)  The thing which they laid aside was the
           tissue [-Abst].
      (b)  *The thing which they laid aside was the
           issue [+Abst].

   Moore extends this analysis to include the various PRO's which
Katz and Postal (1964) proposed. Viz.

(174) (a)  the thing that ⟹ what
      (b)  the place that ⟹ where
      (c)  the time that ⟹ when
      (d)  the way that ⟹ how
      (e)  the question that ⟹ whether
      (f)  the reason that ⟹ why

He thus includes a great deal more under pseudo-cleft than any of
the proposals have.

Against the Something and SOME PRO analyses, Peters and Bach point out the complication they entail for numerous transformations which require knowledge of the position of NP's in the S (e.g., reflexive, reciprocal, pronominalization, case marking, and number agreement). These analyses do not indicate the position of the clefted NP in its correlated unclefted S. Thus the reflexive transformation, to use Peters and Bach's example, must be extended in such a way as to allow reflexives outside a single S, for example, in order to generate (175):

(175) What the missile damaged was itself.

The Reflexive transformation has to operate on the marked NP's in the tree structure (175'):

(175')
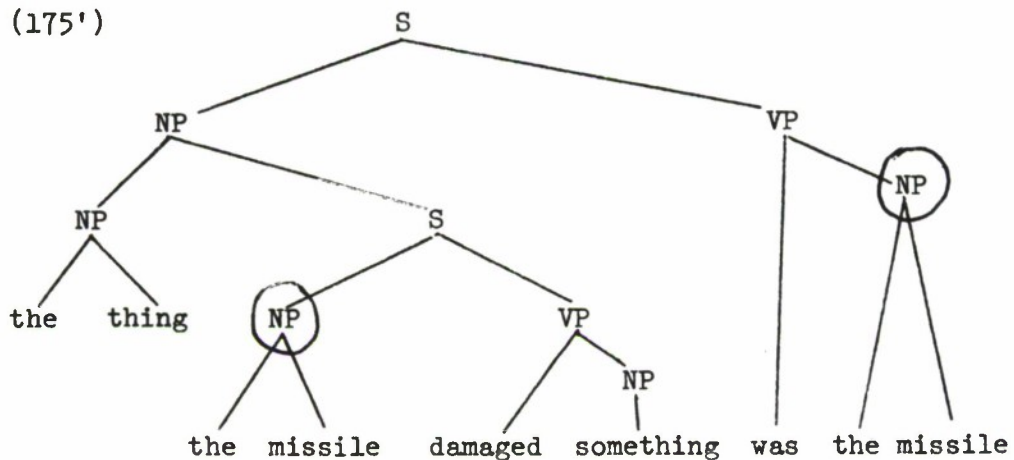


A second disadvantage of the Something Analysis is the difficulty of stating co-occurrence restrictions across the copula. Thus, in example (168), the thing S BE the pigeons is all right regardless of the verb used, but the thing S BE Mary must be excluded if S contains the verb noticed but not if S contains the verb concerned. Viz.,

(176) (a)  What John counted was the pigeons.
     (b)  What concerned John was the pigeons.

(177) (a)  *What John noticed was Mary.
     (b)  What concerned John was Mary.

The third point against this analysis is the failure of the something diagnostic exemplified in sentences (163)-(165) and discussed immediately above them.

4.  Parallel IT-S Analysis (Ross, Peters and Bach)

Having noted the deficiencies of the first three analyses, especially their failures to (a) have the pseudo-clefted NP indicated in the deep structure, and (b) derive the pseudo-cleft NP in a single S identical to the unclefted S, Peters and Bach suggest the following deep structure (suggested to them by Ross) which meets both of the requirements. Let us call this analysis the Parallel IT-S Analysis.

The deep structure source for (178) is (179).

(178)  What John counted was the pigeons.

(179)
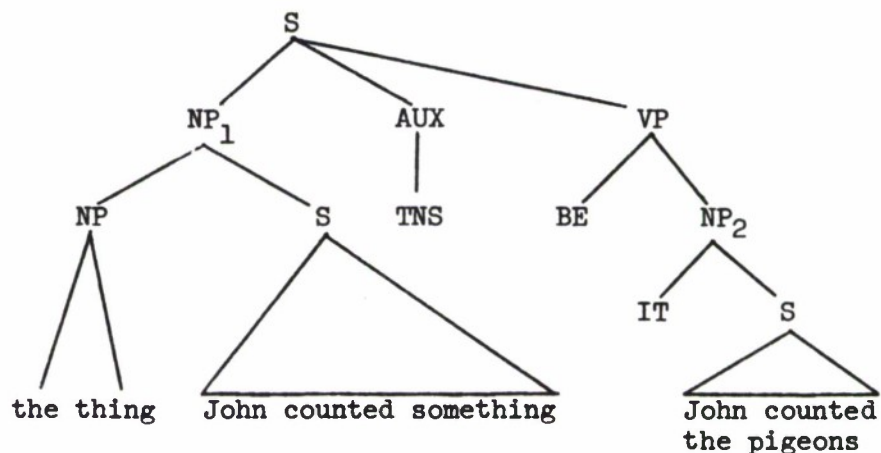


The relative T applies to $NP_1$ yielding a P-marker which the following pseudo-cleft T operates on.

(180)  SD:  the thing $_S$[that, X Y] AUX BE, IT # $_S$[X' NP Y'] #

             1      2 3  4   5   6 7 8  9

     SC: ==   1      2 3  4   ∅   ∅ 7 ∅  ∅

There are several things to be said against this analysis as it stands. First, as in the Something Analysis there is an optional rule permitting the thing that to become what. The above arguments against this and how it can be corrected can be repeated here. (See sentences (172) -(173).

Second, the base structure is not a plausible one for semantic interpretation (cf. "the thing that John counted was (it) that John counted the pigeons"). $NP_2$ does not naturally provide a reading

the pigeons. As it stands, semantic interpretation must wait until
the application of the pseudo-cleft transformation--a position Peters
and Bach rejected for the Extracting Analysis.

Third, from the parallelism of the thing S and the one S,
(as Kuroda (1968) points out) the Parallel IT-S analysis will not
account for sentences like the following.

(181)  The one John told Mary to shave was himself.

(182)  The one who shot John was John himself.

The problem with (181) is the inability to reflexivize under the
IT-S, viz.,

(183)  $_{NP}$[IT $_S$[*John told Mary to shave himself] ]

And the problem with (182) is accounting for the presence of N plus
the reflexive (intensive?).

5.  Parallel NP-S Analysis (Kuroda)

Kuroda's proposal (1968) to correct the Parallel IT-S Analysis
simply involves replacing IT by the clefted NOM and making the follow-
ing S non-restrictive.  The deep structure for the tired out pigeon
sentence thus looks like (184).

(184)
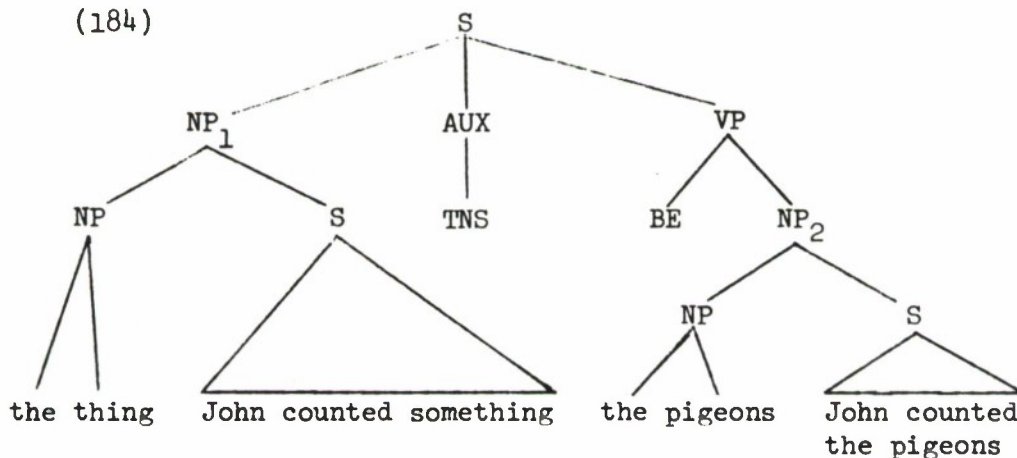


This provides a much more plausible source for semantic interpreta-
tion.

We fail to see however how this analysis accounts for Kuroda's
problem sentences.  (185) will have the deep structure of (186).

(185)   The one who John told Mary to shave was himself.

(186)   $_{NP}$[the one $_S$[John told Mary $_S$[Mary shave someone]]] BE

$NP_2$[John $_S$[John told Mary $_S$[Mary shave John]]]

All of the elements in $NP_2$ will be deleted except those underlined.
What kind of rule will reflexivize the second John remaining in
$NP_2$ and delete the first here but not do the same to the pigeons in
(184)?


V.   A SUGGESTED APPROACH

Previous analyses have treated clefting and pseudo-clefting
as two separate unrelated operations.  We should like to suggest
that they are related in that they have a common deep structure and
that, in essence, the cleft transformation has an input the result
of pseudo-clefting.  This suggestion is a highly tentative one, with
problems which we have so far been unable to resolve.  The major
unresolved problem is that of deriving both the it of the cleft and
the what of the pseudo-cleft from a common deep structure in a well-
motivated way.

We seek to relate these two transformations, not only because
of an intuitive feeling that they are two different ways of doing
the same thing, but also because of a rather large number of
properties which they share, including:

a.   Both constructions share essentially the same con-
     straints on which constituents may be focussed on
     (cf. sections III.A.1-4 and IV.A.1-4) except that NP's
     whose referential pronouns are who cannot be pseudo-
     clefted and PROP's cannot be clefted.

b.   Both constructions have the same tense restrictions on
     the main and embedded verbs (cf. section IV.A.1.(a)(3)).

c.   Both constructions allow independent occurrence of
     modals and negation in the main and embedded verbals
     (III.A.5.(a)-(b); IV.A.5.(a)-(b)).

d.   Both exclude the occurrence of the imperative in the
     top S (III.A.5.(c); IV.A.5.(c)).

e. They are mutually exclusive within the same cycle (III.A.6.(d); IV.A.6.(f)).

f. They have the same ordering relationships with conjunction reduction, reflexivatization, and question (III.A.6; IV.A.6.).

g. Under negation, they share the same type of implicational discourse structure (III.A.5.(b); IV.A.1.(a)(4); IV.A.5.(b)).

h. Whenever the same elements can be either clefted or pseudo-clefted, the cleft and pseudo-cleft appear synonymous, as in:

(187)  It was the cheese that the mouse ate.

(188)  What the mouse ate was the cheese.

Because of differences in the two constructions, however, there are difficulties in a sequential derivation of the type that we propose.  For example, we must generate some ungrammatical pseudo-cleft structures in the derivation of their corresponding grammatical clefts, as in:

(189) (a) *Who lost his contact lenses was Alfred.
      (b)  It was Alfred who lost his contact lenses.

(190) (a) *Where they bought those bracelets was (in) Solvang.
      (b)  It was in Solvang that they bought those bracelets.

In addition, we must prevent the cleft operation from applying to pseudo-cleft PROP's:

(191) (a)  What he did was fasten down the carpet.
      (b) *It was fasten down the carpet that he did.

For the former cases, we must make clefting obligatory and for the latter, restrict the cleft-transformation from applying to PROP's. Obviously, too many such examples would begin to make the analysis suspect, but the major problem, as mentioned above, is with the pronouns.  Because of this major unresolved difficulty, we present no specific analysis here.

December 1968

# PASSIVE

## Contents

PASSIVE

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# II. INTRODUCTION

In the development of generative transformational grammar,
there have been four basic analyses of the passive in English so far
proposed.

## A. Chomsky (1957)

In this analysis, the passive was an optional transforma-
tion which could be performed on the structure underlying an active
kernel sentence as follows:

$$(1) \quad NP_1-Aux-V-NP_2 \implies NP_2-Aux+\underline{be}+\underline{en}-V-by+NP_1$$

Chomsky claimed that the passive was not always synonymous with the
active to which it was transformationally related and cited his well-
known example:

> (2) Everyone in the room knows at least two
>     languages.
> (3) At least two languages are known by everyone in
>     the room.

where the claim was, essentially, that in the "normal" interpretation
of (2), different languages may be known by different people, but in
(3) the languages must be the same for all of the people in the room.

B.   Katz and Postal (1964b)

In order to support the hypothesis that singulary trans-
formations do not change meaning, it was necessary for Katz and
Postal to deal with Chomsky's claim.  They argued both possible
alternatives.  First, they stated that while there was considerable
disagreement about the data, to them both sentences could have the
same two interpretations.  Further, they argued that even if issue
were taken with their interpretation of the data, the underlying
structures of (2) and (3) should differ by the presence or absence
of a manner adverb in order to capture the relations between manner
adverbs and passivizability.  That is, it was claimed that the verbs
whose sentences could be passivized were also the verbs which
allowed manner adverbs.  The underlying forms of passive sentences
thus contained the ADVERB$_{Manner}$ constituent dominating <u>by</u> plus a
passive dummy marker, whereas the underlying forms of active sen-
tences did not.  In the phrase structure rules one could choose
either the <u>by</u> plus PASSIVE or an actual manner adverb.  Since dummy
morphemes were regarded as having no semantic content, the semantic
interpretations of active and passive sentences could be the same,
although the underlying forms were distinct.

However, as Lakoff (1965, Appendix F) has pointed out,
there are a number of exceptions to the manner adverb-passivizability
correlation, such as <u>know</u>, <u>consider</u>, <u>think</u>, <u>perceive</u> which do not
allow manner adverbs, but which can be passivized and <u>resemble</u>, <u>owe</u>,
<u>have</u> (as main verb), which allow manner adverbs but are not passiv-
izable, as in (4) and (5):

(4)(a)  John knows Canada very well.
   (b)  *Canada is known by John.

(5)(a)  John was owed some money by his friends.
   (b)  *His friends owed John some money very well.

In addition, Lakoff also observed that in sentences such
as (6),

(6)  100 soldiers shot two students.  [F-9-25]

(which is parallel to sentence (2)), there is indeed an ambiguity,
but it is not the same ambiguity found in the corresponding passive
(7),

(7)  Two students were shot by 100 soldiers.  [F-9-26]

(which is parallel to (3)).  He argued that while (6) and (7) share
one interpretation, namely (8)

>       (8) A group of soldiers, who were 100 in number,
>           shot a total of two students.  [F-9-26a]

that the two sentences have distinct second interpretations, (9) for
(6) and (10) for (7):

>       (9) 100 soldiers (perhaps out of a larger group)
>           shot two students apiece, though not the same
>           two students.  [F-9-26b]

>      (10) Two particular students (out of all of those
>           who were shot) were each shot by 100 soldiers
>           (though not necessarily the same 100).  [F-9-26c]

An additional argument for the Katz-Postal treatment over
the earlier treatment was that it avoided structure-building by trans-
formation.  As Chomsky pointed out (1957, pp. 73-74), one wants to
know that be by + AGENT phrase in the passive is a prepositional
phrase.  The operation of his passive transformation, however, merely
attached the two constituents by and $NP_1$ to the VP in the configura-
tion (11):

>      (11)
>
>                        ___VP
>                       /  |
>                      /   |
>                     by    NP_1
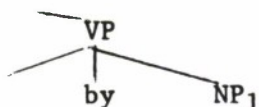
In order to "be a" prepositional phrase, the two constituents would
have to be dominated by a common node, PREP PHRASE, which in turn
is dominated by VP.  But if transformations are allowed to build
structure in this manner (particularly since other instances of the
need for such mechanism are rare and rather special cases), it is
difficult to see how to limit such structure-building power.  In
order to constrain the grammar as tightly as possible, the structure-
building mechanism was to be avoided if possible.  The Katz and
Postal solution to this problem (independently motivated) was to
derive manner adverbs and a number of other adverb types from prepo-
sitional phrases.  Note that in a case-grammar framework the
structure-building problem does not arise, as all NP's are intro-
duced as part of an actant structure consisting of a case domina-
ting a preposition and a noun phrase.  Consequently, it is possible
for the Passive Rule to move the entire actant structure, simply
replacing an underlying preposition with by.  A third alternative,
suggested by Lakoff (1965) is to have no prepositional phrases in
the base.

A third advantage of the manner adverb formulation over his earlier analysis was pointed out by Chomsky (1965). In his earlier treatment, based on transitivity of verbs, he was not able to include what he called psuedo-passives, such as (12):

(12) The proposal was vehemently argued against.

and therefore had to have a separate transformation to account for them. Under the manner adverb analysis sentences of this type could be handled by the regular passive rule by using the presence of the manner adverb dominating by + Passive as the condition required to determine passivizability rather than the presence of an NP immediately after the verb (a condition not met by the psuedopassives, since a preposition intervened between V and NP) and so stating the transformation that it made the first NP after V subject rather than the NP immediately after the V.


C.  The Two-Sentence Passive

Schachter (UESP, 1967) and Hasegawa (1967) independently proposed a two-sentence analysis which would provide a deep structure of the form (14) for the sentence (13):

(13) John was killed by Mary.

(14)

```
                 S
           _____|_____
          NP            VP
          |             |
        John            S
                    ____|____
                   NP        VP
                   |       __|__
                 Mary   killed  John
```
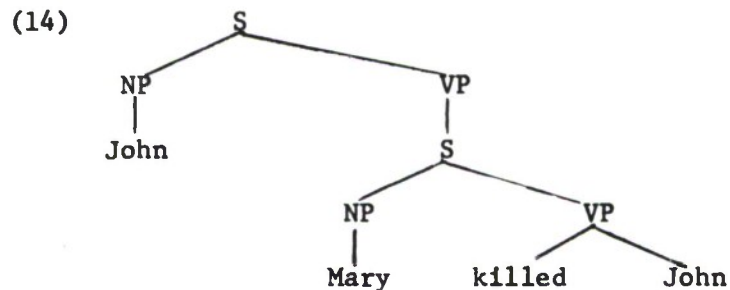
Where, if the subject of the top S is identical to the object of the bottom S, then passivization will take place. This analysis allows the blocking of passive reflexives, such as (15):

(15)*  John was killed by himself.

Given the deep structure (16):

(16)

[tree diagram: S branching into NP (John) and VP, where VP contains S branching into NP (John) and VP (killed, John)]
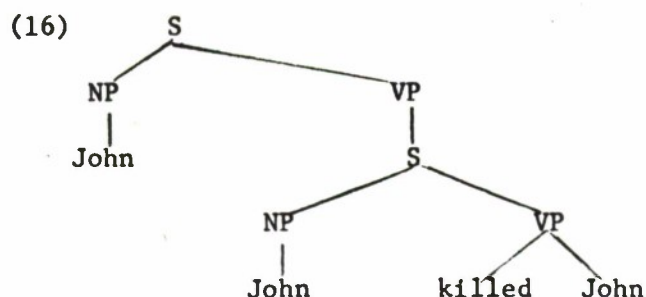
reflexivization (being an obligatory, cyclical rule) will operate upon the embedded S, yielding (17):

(17)

[tree diagram: S branching into NP (John) and VP, where VP contains S branching into NP (John) and VP (killed, himself)]
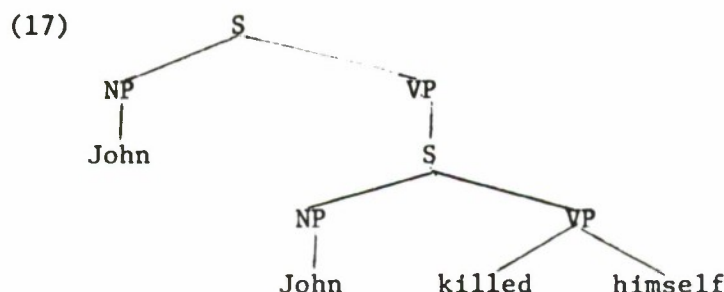
The subject of the matrix sentence will then not be identical to the object of the embedded sentence, so the passive transformation blocks.

At least two questions arise here, however. First, it is not clear that we want to make it impossible to generate passive reflexives. While only a few people find (15) acceptable, there appear to be many examples, such as (18) which receive widespread acceptance:

> (18) A person who is not respected by himself will
>       not be respected by others.

Second, the claim that the reflexive and non-reflexive realizations of the same referent do not meet the identity condition required for the passive transformation (cf. example (17)) is questionable. Ross (at the 1967 UESP Conference) has suggested that there are cases where the reflexive and non-reflexive realizations of the same referent do meet identity conditions. For example, on one reading of (19), there is an obviously deleted wash John.

(19) John washed himself before I could.

Assuming, once again, that reflexivization is obligatory and cyclic, it appears that reflexivization will have taken place in the main clause before deletion of wash John (whatever the structure of subordinate clause-sentences such as (19) is), so that wash himself is identical to wash John in the sense (whatever it is) required for deletion. This particular example is not quite so forceful as it would at first appear, since, on the other reading of (19), wash myself has been deleted, so that whatever is going on in this type of deletion probably is not the same strong sense of identity characteristic of processes such as definite pronominalization, where this strong sense of identity seems to be required. An additional parallel argument against using non-identity of reflexive and non-reflexive forms to block passive reflexives is Chomsky's argument (1965, pp. 176-182) that only inherent features are relevant for the determination of identity. Additional discussion of this issue is to be found in Ross (1967c), pp. 348 ff. and Chomsky (1968).

This analysis also provides a means of explaining the fact that while (20) is ambiguous as to who was willing, the corresponding active sentence (21) is not.

(20) John was willingly sacrificed by the tribe.

(21) The tribe willingly sacrificed John.

The two-sentence passive allows the presence of the verb phrase adverb willingly in either the matrix or the constituent sentence, whereas for the corresponding active sentence, there is only one such node and therefore only one such possible position for the adverb. Notice that this ambiguity cannot be explained by postulating a complement-type structure for the two readings of (20), such as (22) and (23):

(22) #The tribe was willing # The tribe sacrificed John ##

(23) # John was willing # The tribe sacrificed John ##

since the same ambiguity occurrs with such adverbs as on purpose which cannot occur in structures such as (22) and (23) in the same way as willing.

It has been suggested (by Ross at the 1967 UESP Conference) that the "agentive" interpretation of (20) the reading associated with (23)) comes not from an ordinary passive, but from a get passive roughly of the form (24):

(24)

```
                    S
            /              \
          NP                VP
          |           /      |        \
        John         V       S          Adv
                     |     /    \        |
                    got  NP     VP    willingly
                         /\      /\
                    the tribe  sacrificed John
```
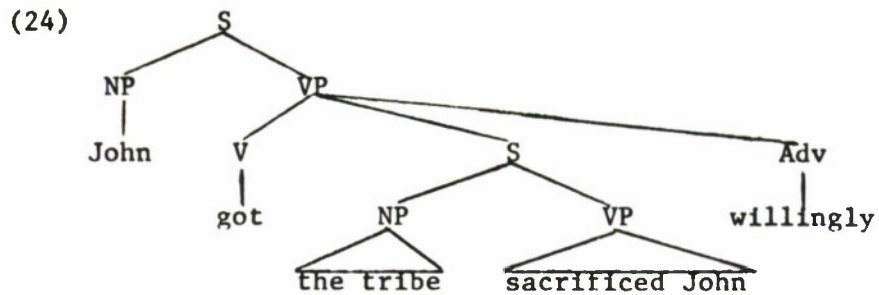
While such an approach clearly has problems of its own (it is not clear
how one would avoid getting the adverbials on either VP, or even on
both), perhaps a more careful formulation of the proposal would offer
a solution, in which case the ambiguity of the adverbs would no longer
support the Schachter-Hasegawa proposal. Their proposal suffers from
a related difficulty in that there seems to be no non-ad hoc way of
avoiding the generation of such adverbs on both the lower and upper
VP's simultaneously, resulting in a sentence such as (25):

> (25) *John was willingly sacrificed by the tribe
>       willingly.

A related difficulty for this analysis is that not all such
passive sentences with these adverbials are ambiguous, as in (26):

> (26) They were willingly allowed to leave.

It is quite unclear how such phenomena would be accounted for in the
two-sentence analysis.

An additional argument against the two-sentence passive,
credited by Ross (at the 1967 UESP Conference) to Chomsky, concerns
idioms such as keep tabs on, take heed of, etc., as in (27):

> (27) Careful tabs were kept on the whereabouts of John.

Nouns such as tabs and heed do not occur freely. They normally occur
only as a part of the above idioms, but in the two-sentence passive,
they would have to be generated freely like ordinary nouns or would
have to be limited by some strange constraint to occurring only in the
upper S of a two-sentence passive structure whose lower sentence
included the correct idiom. Neither of these alternatives is very
desirable. It is not clear, however, how much significance should be
attached to arguments based solely on idioms.

We consider that a restricted two-sentence passive may eventually prove most fruitful in explaining these ambiguities, but we do not make such a proposal here.


## III.   THE CASE-GRAMMAR ANALYSIS

Adopting as a basis Fillmore's (1967a) proposals concerning subject and object placement in active and passive sentences, this grammar handles passivization as an integral part of the early "Case Placement Rules." (see CASE).  These rules first objectivalize the proper actant.  Passive subject-placement may then optionally move the objectivalized NP to the beginning of the sentence and mark the preposition of actant which will be the passive (surface) agent [+by]. If passive subject-placement is not chosen, then active subject-placement obligatorily occurrs.  These same rules operate on NP genitives in a parallel way insofar as genitives are parallel to sentences.  For a more complete discussion of this subject, see CASE.


May 1969

# RULE ORDERING AND LIST OF TRANSFORMATIONAL RULES

The ordering of rules is summarized on the next page, with rule numbers used to indicate those ordering relations for which there are arguments presented in the list that follows.

The rules are then presented, usually one per page, with _rule_, _example_, and _ordering arguments_ for each. Where no number appears to the right of the rule in the ordered list, this means only that we have no argument about what it must _precede_, only arguments about what it _cannot_ precede (i.e. what it must follow), and these arguments are stated with the relevant preceding rules. The same convention applies in the ordering arguments: the arguments are couched in terms of what other rules each rule must precede.

The conjunction schemata have not been included or ordered in this list; and there are a few obvious minor rules which are not formulated at all, though referred to in discussion.

## RULE ORDERING

| Order Number | Rule Name | Ordering: Must Precede the Following: |
|---|---|---|
| 1. | GERUND [+/-FACT] | 2, 3, 5, 19 |
| 2. | PREP SPREAD | 7 |
| 3. | FACT DEL | 4,5 |
| 4. | FOR INSERT | 18, 22, 62, (5?) |
| 5. | EQUI NP DEL | 6 |
| 6. | RAIS TO OBJ | 7, 12, 14, 18, 19, 20, 21 |
| 7. | OBJ | 10, 11, 12, 13, 17 |
| 8. | SINGLE-ACTANT-of | 10, 11, 12, 13 |
| 9. | SOME-ANY | 11, 13, 26, 43, 46 |
| 10. | RAIS OBJ TO SUBJ | 13, 18 |
| 11. | RAIS TO SUBJ | 13 |
| 12. | PASS SUBJ | 13 |
| 13. | ACT SUBJ | 14 |
| 14. | REFLEX | 22, 40 |
| 15. | PARTITIVE POSTPOSE | 16, 18, 47 |
| 16. | PARTITIVE REDUCE | 18, 47 |
| 17. | OF-INSERT | 18 |
| 18. | ACCUSE MARK | 19 |
| 19. | TO REPLACE AUX | 20, 21, 22, 60, 61 |
| 20. | SJC DEL | |
| 21. | THAT INSERT (NOM) | 23 |
| 22. | ONE DEL (GENERIC) | 40 |
| 23. | EXTRA (FROM OBJ) | 24 |

| | | |
|---|---|---|
| 24. | EXTRA (FROM SUBJ) | 25 |
| 25. | THAT DEL (NOM) | |
| 26. | SOME-ANY (REL) | 44 |
| 27. | NOUN FEAT TO ART | 28, 40 |
| 28. | WH ATTACH | 29 |
| 29. | WH FRONT | 31, 34, 38 |
| 30. | CLAUSE POSITION | 38, 39 |
| 31. | REL → THAT | 32, 34 |
| 32. | POSSESSIVE FORMATION | 33 |
| 33. | GENITIVE POSTPOSING | |
| 34. | THAT DEL (REL) | |
| 35. | ELSE | 36 |
| 36. | ART ATTACH | 37, 39 |
| 37. | ATTACH BLOCK | |
| 38. | REL REDUCE | 39 |
| 39. | ADJ PREPOSE | 40 |
| 40. | NOUN REDUCE TO ONE (SELF) | 41, 42 |
| 41. | NOUN → ∅ | 47, 48 |
| 42. | PROPER NOUN THE DEL | |
| 43. | S INITIAL ADV PLACE | 44, 55 |
| 44. | NEG ATTRACT | 45, 46 |
| 45. | INDEF BEFORE QUANT DEL | 46, 47 |
| 46. | ANY - NO | |
| 47. | QUANT MOVE | 52 |

| 48. | ALL THE | 49 |
| 49. | ALL THREE | |
| 50. | <u>BE</u> INSERT | 51, 55, 57, 59 |
| 51. | PREVERB PART PLACE | 55 |
| 52. | PREVERB ADV | |
| 53. | CONJ SPREAD | 55, 56 |
| 54. | WH COPY | 55, 56 |
| 55. | AUX ATTRACT | 56, 58, 59 |
| 56. | <u>WH</u> DEL | |
| 57. | AFFIX SHIFT | 58, 59 |
| 58. | <u>DO</u> SUPPORT | 59 |
| 59. | NEG CONTRACTION | |
| 60. | <u>TO</u> DEL | 61 |
| 61. | <u>TO BE</u> DEL | |
| 62. | PREP DEL | |

RULE - 5

GERUND [+FACT]                                          Order No. 1

<u>Rule:</u>

S.I.   X $_{NP}$[the fact of $_{NP}$[ $_S$[# NP $_{AUX}$[TNS (M) (PERF) (PROG)] X

                 1           2   3  4   5    6   7

S.C. (1)  Chomsky adjoin POSS as last right daughter of 2.
    (2)  If 3 = +PAST and 5 = ∅, attach PERF as left sister of 6.
    (3)  Replace 3 and 4 by <u>-ing</u>.
    (4)  [-EQUI NP DEL] → [+EQUI NP DEL].

  COND: Optional

<u>Example:</u>  John regretted leaving.

<u>Tree:</u>
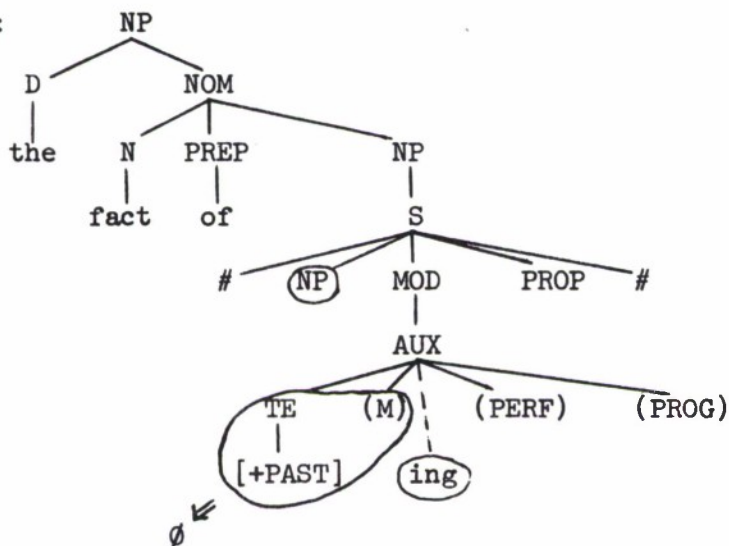


<u>Ordering Arguments:</u>

(1)  Must precede FACT DEL, because <u>the fact of</u> provides the environment for the rule.

(2)  Must precede EQUI NP DEL to account for

    (a)  I regretted leaving.

(3)  Procedes <u>TO</u> REPLACE AUX, because otherwise we would derive

    (b) *I regretted to leave.

GERUND [-FACT]                                      Order No.  1

Rule:

S.I.    X $\left\{\begin{array}{c}\text{PREP}\\ \text{V}\\ \text{[+GER]}\end{array}\right\}$ $^{NP}[\text{X}\ ^{S}[\text{X}_{\text{AUX}}\ \text{[TNS]}\ \text{X}$

       1    2       3        4   5

S.D.    (1)  Replace 4 by _ing_

COND:  Obligatory

Example:  John avoided leaving.

Tree:
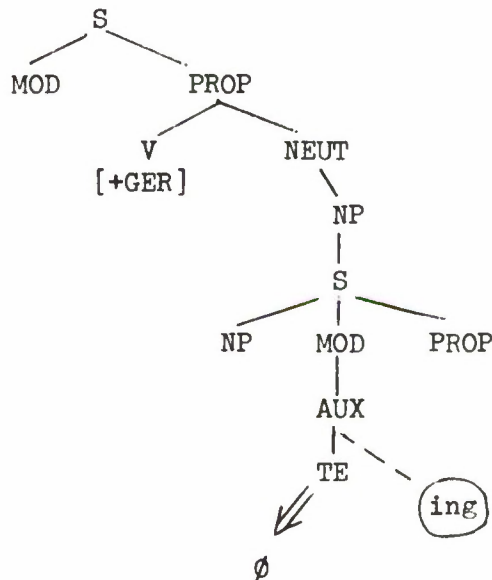


Ordering Arguments:

(1)  Precedes EQUI NP DEL to account for

      (a)  John avoided leaving.

(2)  Precedes TO REPLACE AUX to avoid deriving

      (b)  *John avoided to leave.

(3)  Precedes PREP-SPREAD in order to guarantee that the distinction
between "real" prepositions and "case-marker" prepositions (see CASE
PLACE) can be maintained, since real prepositions demand gerundiviza-
tion but prepositions introduced transformationally do not.

PREP-SPREAD                                          Order No.   2

<u>Rule:</u>

S.I.    X  $\left\{\begin{matrix}V\\N\end{matrix}\right\}$ [+C$_i$  PREP  $\propto$ ]   X   C$_i$ [PREP   X

         1           2    3   4      5       6

S.C.   Attach 3 to 5, erase 2-3


<u>Example:</u>   John puzzled over the problem.


<u>Tree:</u>

S
MOD          VP
AUX       V      NEUT      AGT
PAST   puzzle   PREP   NP   John
       [+NEUT PREP (over)]
       Ø            the problem
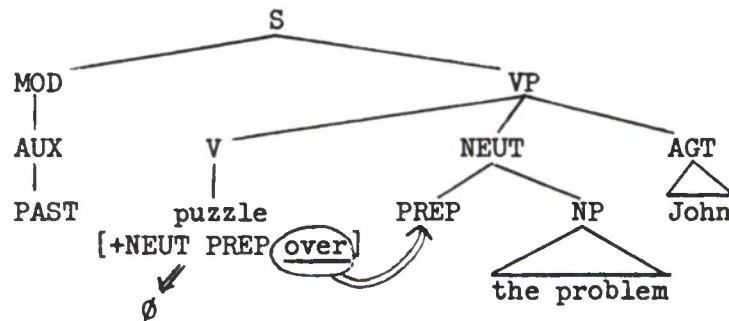

<u>Ordering Arguments:</u>

(1)  Must precede OBJ, since that rule moves a marked preposition down
     under the verb.

FACT DEL                                                    Order No. 3

Rule:

S.I.    X  <sup>NP</sup>[   the X fact of   <sup>NP</sup>[S] X
        ⌞1⌟  ⌞____2____⌟  ⌞__3__⌟

S.D.    Erase 2

COND:   (1) Optional


Example:   John regretted (the fact of) Bill's having left.


Tree:
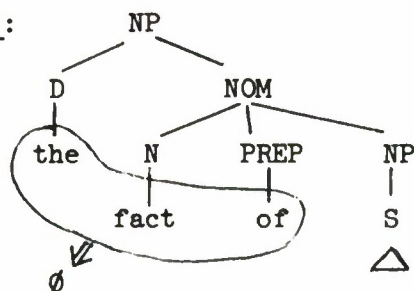



Ordering Arguments:

(1) Precedes EQUI NP DEL to account for

            (a)  I regretted the fact of my leaving/having left.
            (b)  I regretted the fact of leaving/having left.
            (c)  I regretted leaving/having left.
            (d)  *I regretted my leaving/having left.

particularly the ungrammaticality of (1.d).  The only way we can account for
these examples is for FACT DEL to precede EQUI NP DEL, because otherwise
FACT DEL would be obligatory just in case EQUI NP DEL has applied.

(2) Must precede FOR INSERT because of [+FACT] [+EMOT] words like "tragedy",
as in:

            (e)  It would be a tragedy for him to leave.

FOR INSERT                                                    Order No. 4

**Rule:**

S.I.    X   $\begin{Bmatrix} N \\ V \end{Bmatrix}$[+EMOT]  $\begin{Bmatrix} \text{NEUT} \\ \text{INST} \end{Bmatrix}$  (PREP)  $^{NP}[\ ^{S}[$ #  NP  X

        |_____|        |_____|
                    1                2        3      4    5

S.C.    Attach   for   as left sister of 4.
                [+PREP]

COND:  Obligatory


**Example:**  It is desirable for him to do it.


**Tree:**
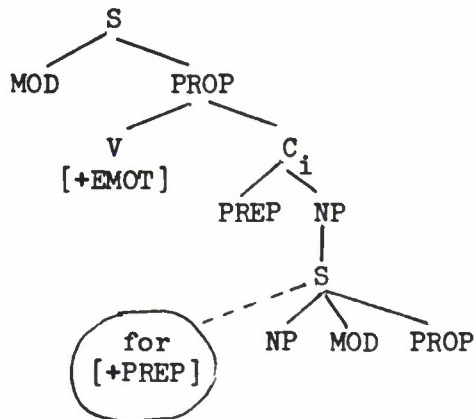



**Ordering Arguments:**

(1)  We have no strong arguments that this rule must precede EQUI NP DEL, but only if it does will we have the same derivation for

>    (a)  John prefers (for Mary) to go.
>    (b)  It scared him (for Mary) to jump off the roof.

(2)  Must precede PREP DEL to account for

>    (c)  John hoped f̸o̸r̸ for Mary to go.
>    (d)  It scared him f̸o̸r̸ to jump off the roof.

(3)  Must precede ACCUSE MARK to get accusative in

>    (e)  For him to come early surprised me.

(4)  Must precede ONE DEL, because the latter rule depends on for or POSS in its environment.

EQUI NP DEL

**Rule:**

S.I.   $X$ $^{NP}[$ $^{S}[NP\ X]$ $^{DAT}[X\ NP]$ $X$ $^{AGT}[X\ NP]$

    1       2         3        4

S.C.   Erase 2

COND:   (1)   2 = 3
        (2)   If $2 \neq 3$, or if $3 = \emptyset$, then $2 = 4$
        (3)   Optional with "transparent" nouns[1], if the noun was not
             deleted (cf. <u>John resented the fact of his leaving</u>)

**Example:**   John hoped to go. [AGT identity]

**Tree:**
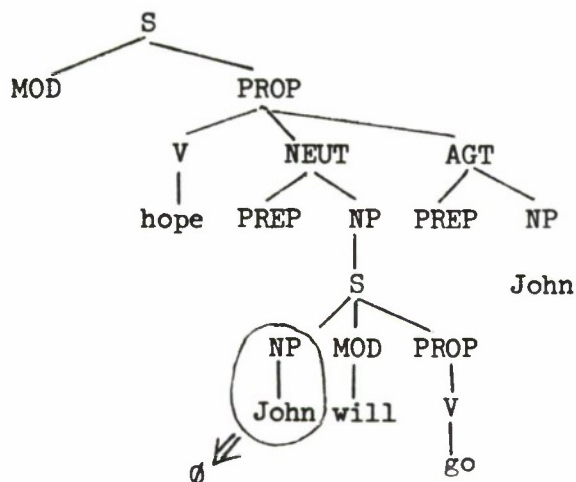


**Ordering Arguments:**

(1) Must precede RAIS OBJ to prevent REFLEX from applying to an identical subject raised to object <u>just in case</u> a verb like <u>expect</u> has both EQUI NP DEL and RAIS OBJ, to avoid ambiguous derivation of:

        (a)   I expect myself to go.

We believe that  (a)  is derived from:

        (b)   I expect [I SJC go] of myself.

with EQUI NP DEL from DAT, which undergoes REFLEX.

Note that:

        (c)   I expect him to go.

is ambiguous between:

        (d)   I expect [he SJC go]

(e)  I expect [he SJC go] of him

(2)  Must precede SOME-ANY to account for:

(f) John couldn't persuade anyone to come.

That is, if SOME-ANY has applied, there is no longer the required identity between

*John couldn't persuade anyone [someone TNS come].

---

[1]Transparent nouns are here opposed to picture nouns.

RAIS TO OBJ

**Rule:**

S.I.    $X \quad {}^{S}[\# \text{ MOD } {}_{PROP}[ \text{ V } \text{ PREP } {}^{NP}[{}^{S}[\# \text{ NP } X$

                      1         2      3    4   5   6

S.C.    (1)  Attach 5 as right sister of 2
        (2)  Erase 3 and original 5

COND:   (1)  2 contains the feature [+RAIS OBJ], and does not contain
              the features [-STAT REDUCT] or [-FUT REDUCT].
        (2)  Obligatory

**Example:**  Mary believes herself to be attractive.

**Tree:**
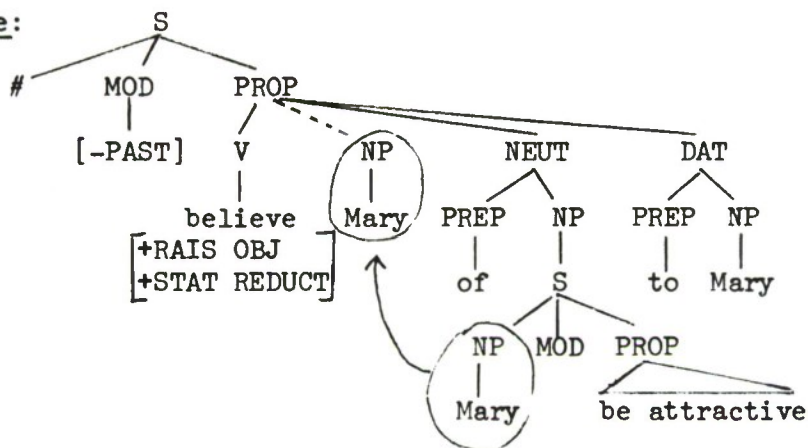


**Ordering Arguments:**

(1)  This rule is governed, hence must precede the general rule of OBJ
PLACE, cf.

        (a)  I believed <u>B.</u> to be a fool (applied).
        (b)  I believed <u>that B. is a fool</u> (not applied).

        [where object of "believe" is underlined]

(2)  Must precede REFLEX, since the latter rule works in simplexes, and an
identical subj. raised to obj. must undergo REFLEX; e.g.

        (c)  He considered/believed/etc. himself to be free.

(3)  Must precede THAT INSERT because the latter rule depends on the
presence of a whole clause (real S).  I.e., all sentences deforming rules
must precede THAT INSERT.

(4)  Must precede ACCUSE MARK to get accusative in, e.g.,

        (d)  F. expected <u>him</u> to go.

(5)  Must precede PASS SUBJ PLACE to account for

      (e)  He was believed to be a fool.

(6)  Must precede TO REPLACE AUX to account for:

      (f)  I expect B. to leave (applied).
      (g)  I expect that B. will leave (not applied).

(7)  Must precede SJC DEL, because the latter rule is triggered (among others) by absence of subject.

M-OBJ (a)                                                          Order No. 7

<u>Rule:</u>

S.I.    X    $\begin{Bmatrix} V \\ N \end{Bmatrix}$           $C_i$ [PREP NP]   X   $C_j$ [PREP NP]   X

         $[+C_j \rightarrow OBJ]$

         1    2                3    4    5        6    7    8

S.C.  (1)  Attach 7 as right sister of 2
      (2)  Delete 6-7

COND:  2 through 7 are a constituent


<u>Example:</u>   John aimed the gun at Mary.


<u>Tree:</u>



<u>Ordering Arguments:</u>

(1)  See U-OBJ (b).

M-OBJ (b)                                                         Order No. 7

**Rule:**

$$\text{S.I.} \quad X \quad \begin{Bmatrix} V \\ N \end{Bmatrix} \qquad\qquad {}_{\text{NEUT}}[\text{PREP NP}] \ X \ {}_{C_j}[\text{PREP NP}] \ X$$

$$[+C_j \rightarrow \text{OBJ, NEUT}]$$
$$[+\underline{\text{Prep}}]$$

           1          2                         3   4   5     6   7   8

S.C. (1)  Attach 7 as right sister of 2;
       (2)  Attach [+<u>Prep</u>] (from 2) to 3;
       (3)  Delete 6-7.

COND:  2 through 7 are a constituent

**Example:**  He loaded the wagon with hay.

**Tree:**                                                                           $\Rightarrow$

PROP — V (load), NEUT (hay), INS (on the wagon), AGT (he)

$$[+\text{LOC} \rightarrow \text{OBJ, NEUT}]$$
$$[+\underline{\text{with}}]$$

PROP — V (load), NP (the wagon), NEUT (PREP [+<u>with</u>], NP (hay)), AGT (he)
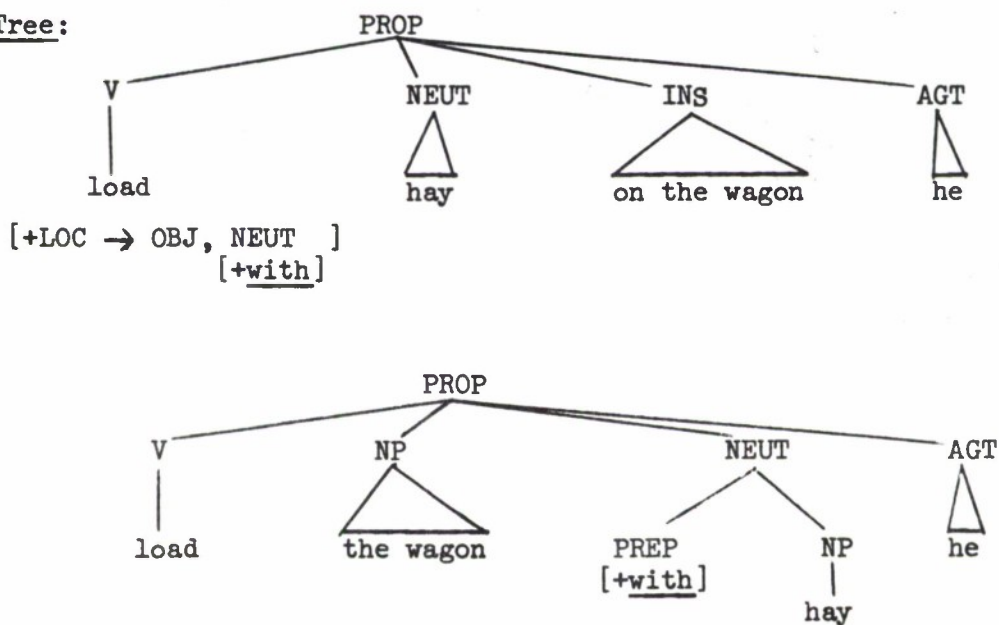
**Ordering Arguments:**

(1)  See U-OBJ (b)

U-OBJ (a)                                          Order No. 7

**Rule:**

S.I.   X $\left\{\begin{matrix} V \\ N \end{matrix}\right\}$ $C_i \begin{bmatrix} PREP \\ [+\underline{Prep}] \end{bmatrix}$ NP]   X   $C_j$   X

    1   2         3        4    5    6    7

S.C.   (1)   Chomsky-adjoin 3 as right sister of 2;
       (2)   Attach 4 as right sister of 2;
       (3)   Erase 3-4.

COND:  (1)   2 through 6 are a constituent
       (2)   If 5 is null and 6 = LOC, the rule does not apply.

**Example:**   He insisted on an answer.

**Tree:**
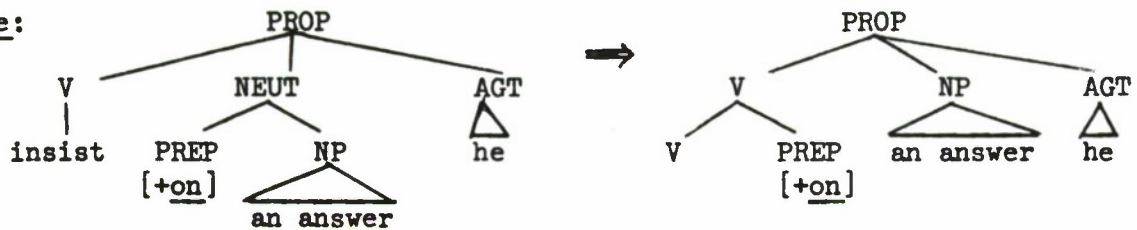


**Ordering Arguments:**

(1)   See U-OBJ (b).

U-OBJ (b)                                        Order No. 7

**Rule:**

S.I.   $X \left\{ \begin{matrix} V \\ N \end{matrix} \right\} C_i$ [PREP NP]   X   $C_j$   X

       1   2        3   4    5   6    7

S.C.   (1)  Attach 4 as right sister of 2;
       (2)  Erase 3-4.

COND:  (1)  **2** through 6 are a constituent
       (2)  If 5 is null and 6 is LOC, the rule does not apply.


**Example:**  He lost his mind.


**Tree:**
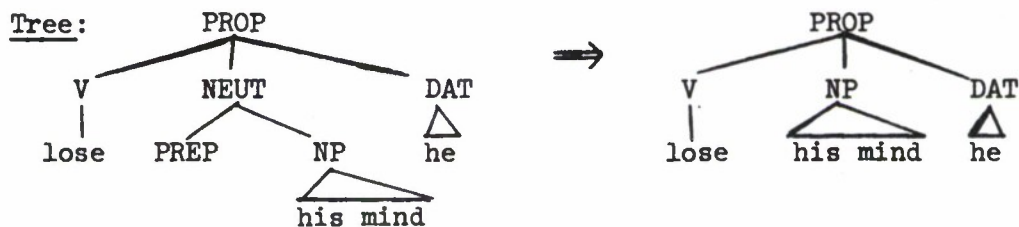



**Ordering Arguments:**

(1)  The four varieties of objectivalization are disjunctive with respect to each other:  if one applies, the other three are excluded, simply because the four structure indices are mutually exclusive:  two different features govern the two M-OBJ rules, and the two U-OBJ rules are distinguished by the presence vs. absence of a marked preposition on the first actant that follows the head.  In respect to ordering arguments, the four may therefore be treated as a single rule OBJ.

(2)  OBJ must precede all SUBJ rules because it provides a condition for the first of the SUBJ rules, namely the removal of the case node over the NP that is permitted to be raised to subject, or to become passive subject.

SINGLE-ACTANT-of                                     Order No. 8

**Rule:**

S.I.   X   $\left\{ \begin{matrix} V \\ N \end{matrix} \right\}$   PREP   NP   X

     1   2   3   4   5

S.C.   Attach [+of] to 3 and delete features other than [+PREP] on 3.

COND:   2-4 is a constituent

**Example:**   The shooting of the hunters...

**Tree:**
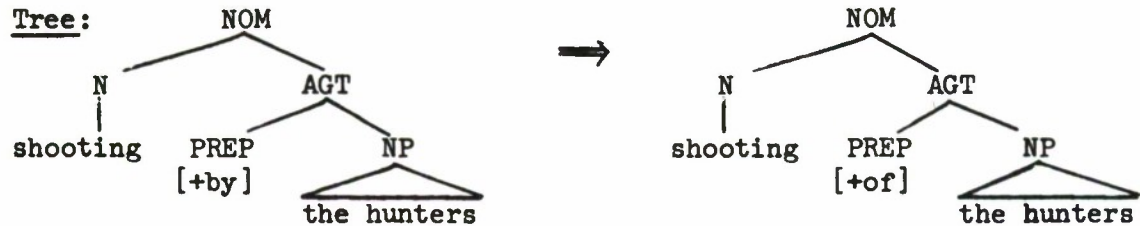


**Ordering Arguments:**

(1)  The rule must precede all SUBJ rules, since the SUBJ rules can
move an actant to the left of the head item and leave behind a single
actant which could then--but should not--be affected by this rule.

RAIS OBJ TO SUBJ                                              Order No. 10

**Rule**:

S.I.    X   $^S$[# MOD $_{PROP}$[ X $^{NP}$[ $_S$[X V  NP  X
        └┘     └────┘      └────┘
         1  2    3      4    5      6   7

S.C.    (1)  Attach 6 as right sister of 2
        (2)  Erase original 6

COND:   (1)  4 contains the feature [+RAIS OBJ TO SUBJ]
        (2)  Optional

**Example**:  John is difficult for Mary to please.

**Tree**:
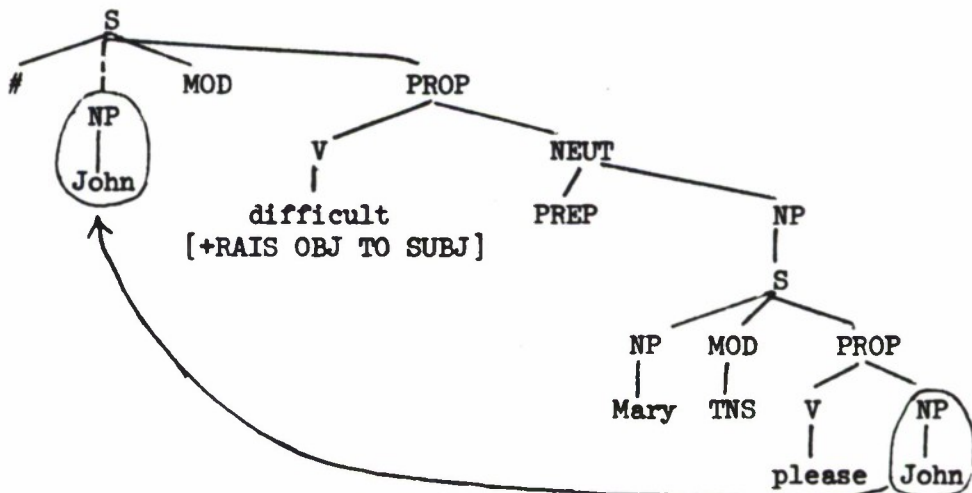


**Ordering Arguments**:

(1)  Precedes ACT SUBJ PLACE, because the latter rule is oblig., and RAIS
OBJ TO SUBJ is optional.  Verbs like _easy_, _difficult_, etc. allow both, as do

>        (a)  The book is easy for John to read.
>        (b)  For John to read the book is easy.

(2)  Precedes ACCUSE MARK, because we want to derive

>        (c)  _He_ is difficult for Mary to please.

and not

>        (d)  *_Him_ is difficult for Mary to please.

SOME-ANY                                                    Order No. 9

Rule:

S.I.    X   [+AFFECT]   X   $\begin{bmatrix} -\text{SPEC} \\ -\text{INDET} \end{bmatrix}$   X

      1     2       3      4     5

S.C.    Change [-INDET] to [+INDET] in 4.

COND:   (1)  2 commands 4
        (2)  If 2 = [+N]; or [+V]; or [+PREP], then 4 does not command 2
        (3)  Complex NP constraint holds
        (4)  Obligatory

Example:  John dislikes anyone meddling in his affairs.

Tree:
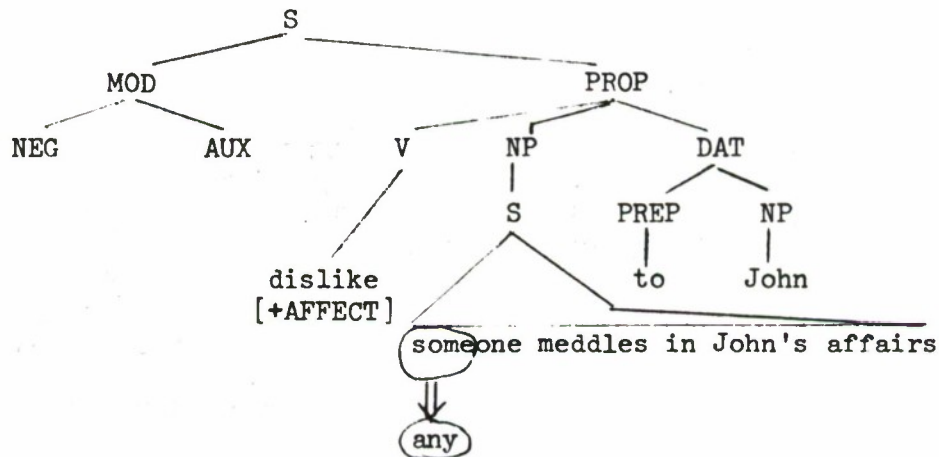


Ordering Arguments:

(1)  Must precede SUBJ PLACE to define context for NEG; i.e., to get
no-one left from NEG leave someone, since SOME-ANY applies to the right.

(2)  Must precede SOME-ANY (REL) because a converted any can then
trigger SOME-ANY REL below it.

(3)  Must precede S INITIAL ADV PLACE, since the latter rule moves ADV
to the left of NEG, and SOME-ANY only works to the right of NEG.

(4)  Must precede ANY-NO, because SOME-ANY provides the environment for
the latter rule.

RAIS TO SUBJ                                          Order No. 11

**Rule:**

S.I.   $X \quad ^S[ \quad \# \quad MOD \quad _{PROP}[ \quad X \quad ^{NP}[ \quad _S[\# \quad NP \quad X$

$\underbrace{\quad}_{1} \quad _{2} \quad \underbrace{\quad}_{3} \quad _{4} \quad \underbrace{\quad}_{5} \quad _{6} \quad _{7}$

S.C.   (1)   Attach 6 as right sister of 2
       (2)   Erase original 6

COND:  (1)   4 contains the feature [+RAIS SUBJ]
       (2)   Optional

**Example:**   John is likely to have arrived.

**Tree:**
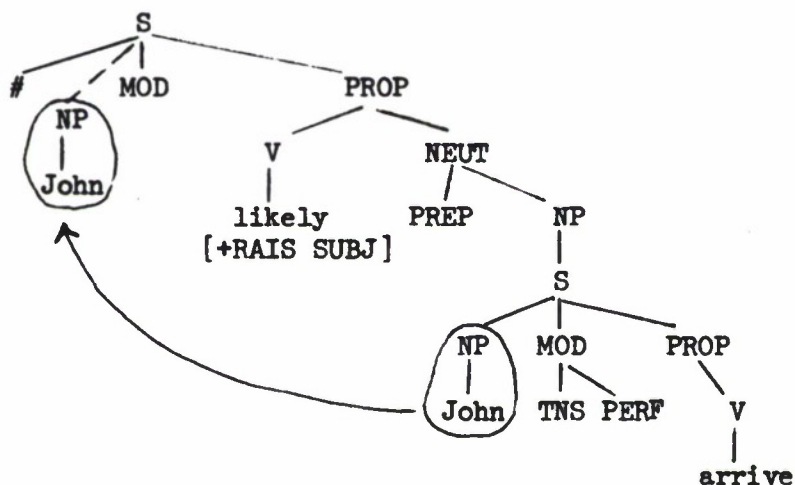


**Ordering Arguments:**

(1) Precedes ACT SUBJ PLACE, because the latter rule is oblig., and verbs like _appear_, _likely_, etc. take either

          (a)   That he left is likely.
          (b)   He is likely to have left.

PASS-SUBJ-BY-PLACE                                    Order No. 12

**Rule:**

S.I.    X $\left\{\begin{array}{c} N \\ V \end{array}\right\}$ NP    X    PREP    NP    X

      1    2    3    4    5    6    7

S.C.    [+Prep, <u>by</u>] replaces features on 5

COND:    (1)    2-6 is a constituent
         (2)    2 has the feature [+PASS]
         (3)    If 2 = N, then 5-6 immediately dominated by AGT or INS

**Example:**    The destruction of the city by the enemy...

**Tree:**



NOM

N — NEUT — AGT

destruction [+PASS]    of the city    PREP    NP    the enemy
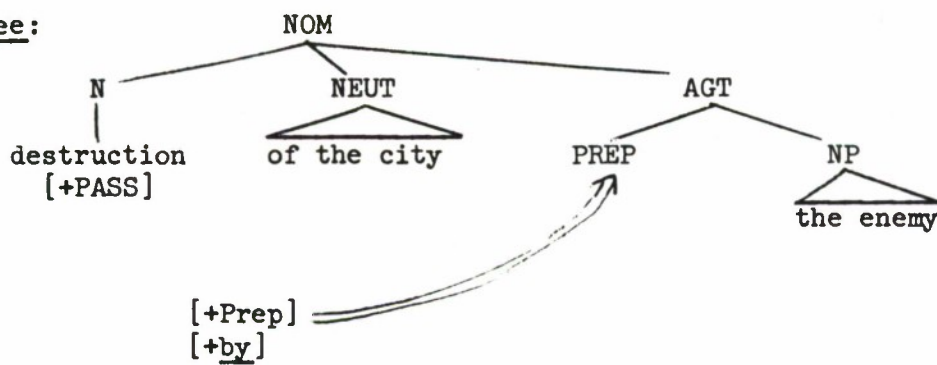
[+Prep]
[+<u>by</u>]

PASS-SUBJ                                                    Order No. 12

Rule:

S.I.   X   $\left\{\begin{matrix} \text{MOD} & \text{V} \\ \text{DET} & \text{N} \\ [\text{-Dem}] \end{matrix}\right\}$   NP   X   PREP   NP   X
                                                [+by]

       1    2      3    4   5     6          7

S.C.   (1)  Attach 4 as left sister of 2;
       (2)  If 3 = N, attach the feature [+Genitive] to 4;
       (3)  If 3 = V, attach be + en as right daughters of 2;
       (4)  Erase original 4.

COND:  (1)  3-6 is a constituent
       (2)  If 3 = N, the rule is optional
       (3)  If 3 = V, the rule is obligatory


Example:  The saint's canonization (by someone)...


Tree:
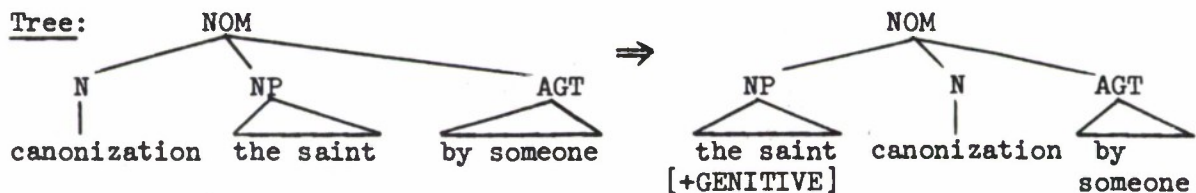



Ordering Arguments:

(1)  Must precede ACT-SUBJ because it is a governed rule whose application removes a set of possible candidates from the domain of ACT-SUBJ.

M-ACT-SUBJ                                                Order No. 13

**Rule:**

S.I.   X   $\begin{Bmatrix} \text{DET} & \text{N} \\ \text{MOD} & \text{V} \end{Bmatrix}$   X   $C_i$ [PREP  NP]   X   X

      1    2     3    4     5   6   7   8

S.C.   (1)  If 3 is V, attach 6 as left sister of 2;  delete 5-6.
       (2)  If 3 is N, attach 6 to 2; add [+GENITIVE] to 6; delete 5-6.

COND:  (1)  3-7 is a constituent;
       (2)  3 has a feature of the form $[+C_i \rightarrow \text{SUBJ}]$

**Example:**   The pool filled with water.

**Tree:**
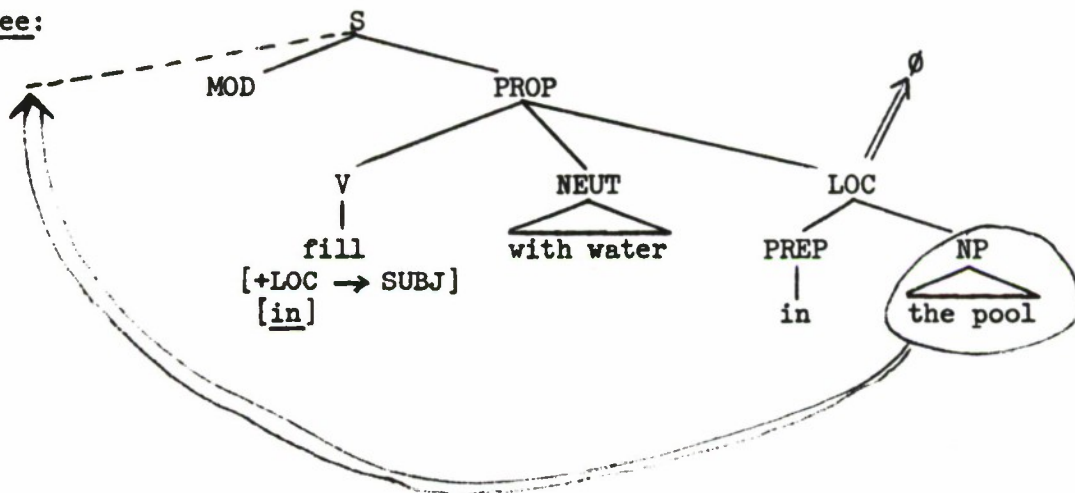
ACT-SUBJ                                          Order No. 13

**Rule:**

$$\text{S.I.} \quad X \left\{ \begin{array}{ll} \text{MOD} & \text{PROP}^{[V} \\ \text{DET} & \text{NOM}^{[N} \end{array} \right\} \quad X \quad C_i \, [\text{PREP} \quad \text{NP}] \quad X \, ] \left\{ \begin{array}{l} \text{PROP} \\ \text{NOM} \end{array} \right\} \quad X$$

$$\phantom{\text{S.I.}} \quad 1 \quad 2 \qquad 3 \quad 4 \quad 5 \quad 6 \quad 7 \qquad 8 \qquad 9$$

S.C. (1) If 3 is V, attach 7 as left sister of 2; delete 5-6-7.
     (2) If 3 is N, attach 7 to 2 with the feature [+Genitive]
         added to it; delete 5-6-7.

COND: (1) Obligatory if 3 = V, or if 3 = N and 5 = DAT
      (2) 8 = LOC, or is null
      (3) 5 ≠ LOC

**Example:** The package arrived at the airport.

**Tree:**
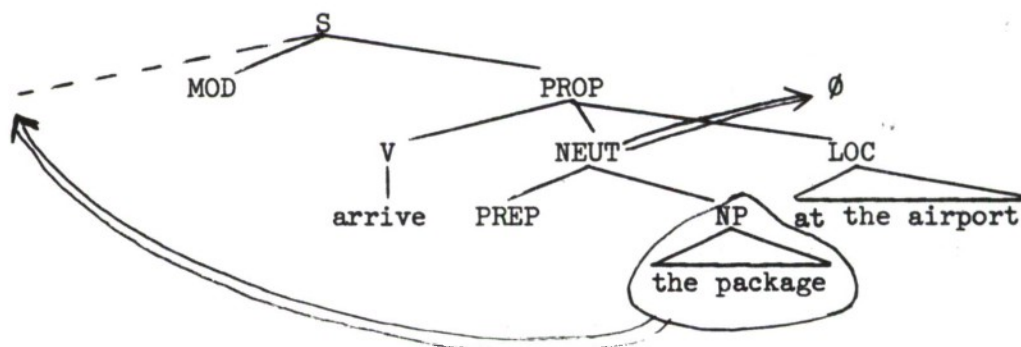


**Ordering Arguments:**

(1) Since REFLEX (ignoring crossover conditions) is most easily stated as working on LEFT-RIGHT surface order, and our underlying structure has active subjects generally right-most, this rule preceded REFLEX.

REFLEX                                              Order No. 14

**Rule:**

S.I.    X $_{NP}$[ $_{DET}$[ART X] X N X ] X $_{NP}$[ $_{DET}$$\begin{bmatrix} ART \\ +DEF \\ -DEM \\ -GENITIVE \end{bmatrix}$ X ] X N X ] X

      1  2     3  4  5 6 7   8 9     10     11 12 13 14 15

S.C.    Attach $\begin{bmatrix} +REFL \\ +ATTACH \end{bmatrix}$ to 13 and 10

COND:   (1)  2 is immediately dominated by lowest S or NP that dominates 9
        (2)  6 = head of its NP
        (3)  13 = head of its NP
        (4)  5,6,7 = 12,13,14
        (5)  If 3 = [+DEF,-GENERIC], then 3 = 10 and 4 = 11
            If 3 ≠ 10, then 11 = ∅, and 10 = [-I,-II]
        (6)  If 3 = [+I] or [+II] optional, otherwise obligatory

**Example:**   The boy saw himself.

**Tree:**



**Ordering Arguments:**

(1)  Must precede NOUN REDUCT TO ONE, so that the latter can be obligatory for items marked [+REFLEX].

(2)  Must precede ONE DEL to get

      (a)  Patting oneself on the back is ungracious.

(3)  Must precede YOU DEL to get

      (b)  Help yourself!

(4)  Must precede ART DEL with proper nouns,

(5)  Must precede PRON CONJ to get

      (c)  John and Mary shot themselves.

PARTITIVE POSTPOSE                                    Order No. 15

<u>Rule</u>:

   S.I.   X $_D$[ X  PART] $_{NOM}$[N]  X

          1     2  3       4   5

   S.C.   (1)  Attach 3 as right sister of 4
            (2)  Erase original 3

   COND:  Obligatory

<u>Example</u>:  Three (boys) of the boys left.

<u>Tree</u>:



<u>Ordering Arguments</u>:

(1)  Must precede PARTITIVE REDUCE because otherwise we get

       (a)  *three of the ones boys

from the above.

(2)  Must precede QUANT MOVE because otherwise we derive

       (b)  each of them

from <u>each of the boys</u>, instead of the correct <u>each of the boys</u> or <u>the boys each</u>.

(3)  Must precede ACCUSE MARK to derive

       (c)  each of <u>them</u>

rather than *<u>each of they</u>.

(4)  As far as we know, this rule is not ordered with respect to any of the preceding rules.  That is, this rule does not seem to have to follow any rule.

PARTITIVE REDUCE[1]                                    Order No. 16

**Rule:**

S.I.    X $_{NP}$[X      N      X [ <u>of</u>   $_{NP}$[X       N    X] ] X ] X

                      2            [+PART]              5

$$\begin{bmatrix} \alpha\ \text{PL} \\ \beta\ \text{ACCUSE} \\ \gamma\ \text{REFLEX} \end{bmatrix} \qquad\qquad \begin{bmatrix} \delta\ \text{PL} \\ \epsilon\ \text{ACCUSE} \\ \gamma\ \text{REFLEX} \end{bmatrix}$$

        1      3              4          6          7

S.C.    (1)  Attach [+PRO] to 3
        (2)  Delete all features of 2 not specified in 3

COND:   (1)  2 = 5 (except for NUMBER, CASE, REFLEX)
        (2)  Obligatory

**Example:**  John met many (ones) of the boys.

**Tree:**



**Ordering Arguments:**

(1)  Must precede QUANT MOVE because otherwise we get

        (a)  *boy of them each

instead of <u>the boys each</u>.

(2)  Must precede ACCUSE MARK for the same reason as PARTITIVE POSTPOSE
      must precede the former rule.

---

[1]This rule slightly changed from earlier version.

OF-INSERT                                                    Order No. 17

Rule:

  S.I.  X   N   NP   X

        1   2   3    4

  S.C.  Attach $_{PREP}$[+of] as left sister of 3

  COND:  2 and 3 are immediately dominated by NOM


Example:  The amazement of the child at the performance...


Tree:




Ordering Arguments:

(1)  The rule must follow OBJ, since its distinctive environment is established by that rule.

(2)  It must precede ACCUSE-MARK because the inserted preposition of provides a condition for applying the rule.

ACCUSE MARK[1]                                         Order No. 18

<u>Rule</u>:

S.I.    X $\left\{\begin{array}{c} V \\ PREP \end{array}\right\}$  $_{NP}[$ ART   X

      1    2     3    4   5

S.C.    Attach [+ACCUSE] as feature to 4

COND:   (1)  2 and 3 must be a constituent
        (2)  Obligatory

<u>Example</u>:  She gave $\left\{\begin{array}{l} \text{him the apple} \\ \text{the apple to him} \end{array}\right\}$ .

<u>Tree</u>:

```
                          S
                   /             \
                 NP              PROP
                  |          /    |      \
                  |         V     NP      DAT
                  |         |    /  \    /    \
                  |         |   D    N  PREP   NP
                  |         |   |    |   |      |
                 she      gave the apple to    he
                                               [+ART]
                                                 ⇑
                                              [+ACCUSE]
```

<u>Ordering Arguments</u>:

(1)  Must precede TO REPLACE AUX because the accusative provides one of
the environments for the latter rule; i.e. the subject of the nominal is
marked [+ACCUSE], thus permitting TO REPLACE AUX to take place.

---

[1]This rule slightly changed from earlier version.

TO REPLACE AUX                                             Order No. 19

Rule:

S.I.    X $^{NP}[$ $^{S}[$ ( <u>for</u> NP)  $\begin{Bmatrix} TE(M) \\ SJC \end{Bmatrix}$ (PERF) (PROG)  X

        |_____|          |_____|

              1              2           3      4

S.C.    (1)  Replace 2 by <u>to</u>
        (2)  If 2 = [+PAST], and 3 does not contain PERF, then attach
             PERF as right sister of 2

COND:   Obligatory

Example:   John intends to win.

Tree:



Ordering Arguments:

(1)  Must precede THAT INSERT (NOM) because THAT insertion depends on presence of AUX.

(2)  Must precede SJC DEL because there must be an AUX to replace.

(3)  Must precede ONE DEL so that the derivation of e.g.,

        (a)  NP is easy for NP[+ACCUSE] to please.
        (b)  NP is easy                to please.

is the same.  That is, so that TO REPLACE AUX should be triggered by the same condition in both examples above, but if ONE DEL precedes TO REPLACE AUX, then in example  (a)  the rule would be triggered by the presence of the <u>for</u> (the feature [+ACCUSE]), while in example (3.b) the rule would be triggered by the absence of the subject.

SJC DEL                                              Order No. 20

**Rule**:

    S.I.   X  SJC  X
          1   2   3

    S.C.   Erase 2

    COND:  Obligatory

**Example**:  John demands that Mary be dismissed.

**Tree**:

**Ordering Arguments**:

(1) We have no strong arguments why this rule must precede THAT INSERT
(NOM). That is, this is simply the earliest place the rule can have in
the ordering.

THAT INSERT (NOM)

**Rule:**

S.I.    $X \ _{NP}[ \ ^S[ \ \# \ NP \ _{AUX}[TNS \ X$

             1     2      3

S.C.    Insert <u>that</u> as right sister of 2

COND:  Obligatory

**Example:**  That he came at all astonished us.

**Tree:**

```
              NP
              |
              S
          ⟋  ⟋↑⟍
        #    NP   PROP
             |    ⟋  ⟍
            he   came at all
       (that)
```

**Ordering Arguments:**

(1)  Precedes EXTRA, because THAT clauses can be extraposed, while
GERUNDIVES cannot.

ONE DEL (GENERIC)                                          Order No. 22

**Rule**:

S.I.    X $^{NP}[$ $^S[$ # for $^{NP}[$ one ] $_{AUX}[$ to X

⎣_____⎦  ⎣_____⎦  ⎣_____⎦
        1              2              3

S.C.    Erase 2

COND:   Optional

**Example**:  To collect butterflies is amusing.

**Tree**:



**Ordering Arguments**:

(1)  Must precede NOUN REDUCT TO ONE because the abstract <u>one</u> can be pronominalized to <u>him</u>, but only when the antecedent has not been deleted; cf.,

      (a)  laughing at people and expecting them to like $\begin{Bmatrix} \text{*him} \\ \text{one} \end{Bmatrix}$ ...
      (b)  One shouldn't laught at people and expect them to like him.

EXTRA (from OBJECT)                                         Order No. 23

<u>Rule</u>:

S.I.   X   $^{PROP}[\,_V\,[+EXTRA]\quad ^{NP}[S]\quad X$

       1   2            3          4      5

S.C.   (1)  Attach 4 as last daughter of 2
       (2)  Replace 4 by it
                        [-PRO]

COND:  (1)  Obligatory

       (2)  4 does not dominate $_{AUX}[ing\ X]$

<u>Example</u>:  John likes it that Mary is faithful.

<u>Tree</u>:



<u>Ordering Arguments</u>:

(1)  Must precede EXTRA (from SUBJECT), because of e.g.,

         (a)  It clinches it that she is a fool that she put the
              eggs in the bottom of the basket.

Sentences like this one have the extraposed object <u>inside</u> the extraposed
subject.  [Note that the example is not acceptable to all of our informants.
For dialects not accepting the sentence cited above, EXTRA (from OBJECT)
and EXTRA (from SUBJECT) appear to be disjunctively ordered.]

885

EXTRA (from SUBJECT)                              Order No. 24

Rule:

    S.I.    X   $^S$[ $^{NP}$[S]  MOD  PROP]  X
            1   2      3     4    5      6

    S.C.    (1)  Attach 3 as right sister of 5
            (2)  Replace 3 by  it
                             [-PRO]

    COND:   (1)  Obligatory if 5 dominates $_V$[+EXTRA], optional otherwise
            (2)  3 does not dominate $_{AUX}$[ing X]

Example:  It appears that John is a fool.

Tree:



Ordering Arguments:

(1)  Must precede THAT DEL (NOM), since all  sentences in subject position
(THAT clauses) disallow THAT DEL (NOM).

THAT DEL (NOM)                                    Order No. 25

**Rule**:

S.I.     X $^{PROP}[$   V      $^{NP}[$ $^{S}[$   that   X
                    [-fact]

         |_____|
                  1              2     3

S.C.     Erase 2

COND:    Optional

**Example**:  Fred thought he saw John.

**Tree**:



**Ordering Arguments**:

(1)  As far as we know, this could be the last rule.

SOME-ANY (REL)                                    Order No. 26

<u>Rule</u>:

S.I.   $X_{NP}[_D[_X \begin{bmatrix} [+AFFECT] \\ [+INDET] \end{bmatrix} X]_{NOM}[NOM_S X \begin{bmatrix} -SPEC \\ -INDET \end{bmatrix} X]]] X$

                                                    1          2

S.C.   Change [-INDET] to [+INDET] in 2

COND:  (1)  1 = lowest S dominating 2
       (2)  Obligatory

<u>Example</u>:  Anybody who ever swears at me better watch his step.

<u>Tree</u>:



<u>Ordering Arguments</u>:

(1)  Must precede NEG ATTRACT because of

          (a)  No-one who ever swears at me is likely to leave
               this room.

NOUN FEATURE TO ART

Rule:

S.I.　X　NP[ ART　X　　N　　　　X ] X

　　　　　　　　　　　　　　4

$$\begin{bmatrix} \alpha\text{COUNT} \\ (\beta\text{ HUMAN}) \\ (\delta\text{ MASC}) \\ (\delta\text{ PLURAL}) \end{bmatrix}$$

　　　　1　　　　2　　3　　5　　　6　　7

S.C.　Attach 5 as features to 2

COND:　(1)　4 = head of its NP
　　　　(2)　Obligatory

Example:　When I saw the man, he was eating.

Tree:



The whole set of features under ART will become <u>he</u> in the second lexical look-up.

Ordering Arguments:

(1)　This rule does not seem to be ordered with respect to the preceding rules; i.e., this is simply the latest place at which it fits.

(2)　This rule must precede WH ATTACH, because WH ATTACH deletes head nouns.

(3)　This rule must precede NOUN REDUCT TO ONE because the latter rule wipes out the environment on which this rule operates.

WH ATTACH ("NOM-S" Analysis)                    Order No. 28

**Rule:**

S.I.    X   NOM $_S$[  #   X  $_{NP}$[  X   ART + NOM]   X   #  ]   X

        1    2      3   4      5    6        7     8   9    10

S.C.    (1)  Replace [-WH] in 6 by: $\begin{bmatrix} +WH \\ +REL \\ +PRO \end{bmatrix}$

        (2)  Replace $\begin{bmatrix} +SPEC \\ -DEF \end{bmatrix}$ in 6 by [+DEF]

        (3)  Erase 3 and 7
        (4)  Replace 9 by "Half-Fall"

COND:   (1)  2 = 7
        (2)  6 dominates $\begin{bmatrix} +SPEC \\ -DEF \\ -WH \end{bmatrix}$

        (3)  If there is a [+WH] anywhere within the S immediately
             dominating 7 which is also [-REL], the S.I. is <u>not</u> met
        (4)  Obligatory

**Example:**  The picture which I took is out of focus.

**Tree:**



**Ordering Arguments:**

(1)  This rule must precede WH FRONT for obvious reasons.

WH ATTACH ("NP-S" Analysis)                    Order No. 28

Rule:

S.I.   X  NP $_S$[ # X $_{NP}$[ D N]  X #] X

       1 2    3 4 5   6 7   8 9 10

S.C.   (1)  Replace [-WH] in 6 by $\begin{bmatrix} +WH \\ +REL \\ +PRO \end{bmatrix}$

       (2)  If 6 dominates [-DEF], replace it by [+DEF]
       (3)  Erase 3 and 7
       (4)  Replace 9 by "Half-Fall"

COND:  (1)  2 = 5, and 4 $\neq$ X + that
       (2)  Obligatory
       (3)  6 dominates [-WH]
       (4)  If there is a [+WH] anywhere within the S immediately
            dominating 7, which is also [-REL], the S.I. is not met

Example:   The picture which I took is out of focus.

Tree:



Ordering Arguments:

(1)  This rule must precede WH FRONT for obvious reasons.

WH ATTACH  ("ART-S" Analysis)                    Order No. 28

Rule:

S.I.   X $_D$[X ART $_S$[# N $_{NP}$[ART N] X #] $_{NP}$  N   X

       1    2   3   4 5 6 7    8  9 10 11 12 13 14

S.C.   (1)  Replace [-WH] in 8 by $\begin{bmatrix}+WH \\ +REL \\ +PRO\end{bmatrix}$

       (2)  If 8 dominates [-DEF], replace it by [+DEF]
       (3)  Erase 5 and 9
       (4)  Replace 11 by "Half-Fall"

COND:  (1)  3 + 13 = 8 + 9
       (2)  If there is a [+WH] anywhere within 4, which is also [-REL],
            the S.I. for the rule is not met.
       (3)  8 dominates [-WH]
       (4)  Obligatory

Example:  The picture which I took is out of focus.

Tree:



Ordering Arguments:

(1)  This rule must precede WH FRONT for obvious reasons.

WH FRONT                                                    Order No. 29

<u>Rule</u>:

S.I.    X   <sub>S</sub>[ X <sub>NP</sub>[ X   X   <sub>NP</sub>[ ART ]   X

      1   2   3     4   5   6     7        8

S.C.    (1)   Chomsky adjoin 6 as left daughter of 2, OR Chomsky adjoin
           5 + 6 as left daughters of 2 (in accord with Pied Piping
           convention)
     (2)   Erase original (5), 6

COND:   (1)   7 dominates $\begin{bmatrix} +WH \\ +REL \\ +PRO \\ +DEF \end{bmatrix}$

     (2)   General constraints on movements hold
     (3)   Obligatory

<u>Example</u>:   The picture which I took is out of focus.

<u>Tree</u>:



<u>Ordering Arguments</u>:

(1)   This rule precedes THAT DEL because deletion of <u>that</u> is possible
only if the <u>that</u> precedes another NP, a condition to be found only after
WH FRONT.

(2)   This rule is not ordered with respect to REL⇒THAT, but should precede it.

(3)   This rule precedes REL REDUCT for obvious reasons.

CLAUSE POSITIONING  ("ART-S" Analysis only)          Order No. 30

**Rule:**

S.I.    X  $_{NP}$[ X $^D$[ S ] X ] X

        1        2   3

S.C.    (1)  Attach 2 as last daughter of 1
        (2)  Erase original 2

COND:   (1)  2 dominates $\begin{bmatrix} +WH \\ +REL \\ +PRO \end{bmatrix}$

        (2)  2 does not dominate an S which dominates $\begin{bmatrix} +WH \\ +REL \\ +PRO \end{bmatrix}$

        (3)  1 is the highest NP dominating 2
        (4)  Obligatory

**Example:**  John bought the car which I want.

**Tree:**



**Ordering Arguments:**

(1)  This rule is not strictly ordered with respect to any rules in this block except REL REDUCT and ADJ PREPOSE, which it must precede.

REL ⟹ THAT                                          Order No. 31

<u>Rule</u>:

   S.I.   X  ART  X

$$\begin{bmatrix} +WH \\ +REL \\ +PRO \\ +F \end{bmatrix}$$

        1    2   3

   S.C.   Attach [+THAT] as feature to 2

  COND:  (1)  1 ≠ X + PREP
         (2)  Optional

<u>Example</u>:  The picture that I took is out of focus.

<u>Tree</u>: (NOM-S)



<u>Ordering Arguments</u>:

(1)  This rule precedes THAT DEL for obvious reasons.

(2)  This rule is not ordered with respect to REL REDUCT and ADJ PREPOSE

POSSESSIVE FORMATION                                    Order No. 32

<u>Rule</u>:

S.I.   $_{NP}[$ $_{NP}[$X ART X N X$]_S$[NP BE  NP       ] ]
                                        [+Dative]

       1    2   3  4 5 6   7  8      9

S.C.  (1)  Attach 9 to 3
      (2)  Erase 7, 8, 9
      (3)  Add [+Genitive] to 3

COND:  (1)  3 does not dominate NP
       (2)  7 dominates [+THAT]


<u>Example</u>:  John's house...


<u>Tree</u>:




<u>Ordering Arguments</u>:

(1)  Must follow REL → <u>that</u>, for condition (2).

(2)  Must precede Genitive Postposing to obtain:  <u>that house of John's.</u>

GENITIVE POSTPOSING                                    Order No. 33

Rule:

S.I.    ART[  NP        ]  X   N   X
           [+Genitive]

          1      2          3   4   5

S.C.   (1)  Attach 2 as right sister of 4
       (2)  Delete 2

COND:  (1)  1 ≠ [+Def]  (Note:  This is understood strictly:  if 1
                                dominates anything in addition to
                                [+Def] the rule does not apply.)
       (2)  3 does not directly dominate NP


Example:   That house of John's...


Tree:




Ordering Arguments:

(1)  Follows Possessive Formation to obtain:   that book of John's.

THAT DEL (REL)                                                    Order No. 34

**Rule:**

S.I.    X    ART    NP    X
$$\begin{bmatrix} +WH \\ +REL \end{bmatrix}$$
        1     2     3    4

S.C.    **Erase 2**

COND:   Optional

**Example:**   The picture I took is out of focus.

**Tree:**



**Ordering Arguments:**

(1)  This rule is not ordered with respect to REL REDUCT or ADJ PREPOSE.

**Rule:**

S.I.   X  [+ATTACH]   <u>other</u>   [+ATTACH]   X

     1      2       3       4     5

S.C.   (1)  Attach <u>else</u> as right sister of 4
       (2)  Erase 3

COND:  Obligatory

**Example:**  "somebody else" (from "*some other body")

**Tree:**

```
          NP                              NP
        /    \                          /    \
       D      NOM                      D      NOM
      / \      |                       |     /   \
   some  other N                     some  N     else
   [+ATTACH]   |                           |
             body                        body
           [+ATTACH]
```

**Ordering Arguments:**

(1)  This rule must precede ART ATTACH because <u>other</u> (which is the source for <u>else</u>) stands between ART and NOUN; e.g.,

    (a)   some other person $\Rightarrow$ someone else

ART ATTACH                                                    Order No. 36

<u>Rule</u>:

    S.I.   X $_D$ [ [+ATTACH] ] $_N$ [ [+ATTACH] ] X

         1  2             3            4

    S.C.   (1)  Insert "§" as right and left sister of 3.
            (2)  Insert 2 as left sister of 3.
            (3)  Erase original 2.

            (i.e., 1 - ∅ - § + 2 + 3 + § - 4)

    COND:  Obligatory
           where  "§" is an <u>ad hoc</u> symbol for word-formation

<u>Example</u>:  "everything", "anyone"

<u>Tree</u>:



<u>Ordering Arguments</u>:

(1)  This rule must precede ATTACH BLOCK, since nouns marked [+ATTACH] cannot stand alone, yet they are not constrained in the P.S. rules to co-occur only with ART's marked [+ATTACH].

(2)  This rule precedes ADJ PREPOSE

        (a)  somebody nice

i.e., the fact that attached ART + NOUN structures have the ADJ following them.

ATTACHMENT BLOCK

Rule:

S.I.    X    D    $_{NOM}$[ $_N$ [+ATTACH] ]    X
        |_____|
                     1

S.C.    Erase 1

COND:   Obligatory

Example:   *each body

Tree:



Ordering Arguments:

(1)  This rule must be last in this block of rules, because it blocks ungrammatical strings like

        (a) * three bodies
        (b) * each body

which would otherwise be formed on the analogy of somebody, anybody, etc.

REL REDUCE A                                          Order No. 38

Rule:

S.I.    X   NOM      S[  ART     TNS   be   X ]   X
            [-PRO]      [+REL]

        |_____|  |_____|

             1    2          3        4    5

S.C.    (1)  Erase 3
        (2)  Attach 4 as last daughter of 1

COND:   Optional

Example:  The boy here is tall.

Tree:



Ordering Arguments:

(1)  This rule must precede ADJ PREPOSE to derive pre-nominal adjectives
like

        (a)  the tall girl

without needing two rules which reduce relative clauses.

REL REDUCE B                                                    Order No. 38

Rule:

S.I.    X    NOM    $_S$[   ART  (ADV)   TNS   (NEG)   V   X  ]   X
             [-PRO]      [+REL]
        └──────────┘                                   └───┘
             1      2      3      4      5      6      7      8

S.C.    (1)  Erase 3
        (2)  Attach <u>ing</u> to 5, erasing [+/-PAST], OR
        (3)  If 5 dominates [+PAST], attach <u>-ing</u> <u>have En</u> as daughter
             of 5, and erase [+PAST]
        (4)  Attach 4-7 as last daughters of 1

COND:   Optional

Example:  People owning large houses pay large taxes.

Tree:



Ordering Arguments:

(1)  This rule must precede ADJ PREPOSE to derive e.g.,

        (a)  the sleeping child...

without having two rules which reduce Rel. Clauses.

ADJ PREPOSE                                                Order No. 39

<u>Rule</u>:

S.I.   X   $\left\{\begin{matrix}\text{NOM}\\ \text{[-PRO]}\\ \text{N}\\ \text{[-PRO]}\end{matrix}\right\}$   $_S[$   $\left\{\begin{matrix}V\begin{bmatrix}+V\\ +ADJ\end{bmatrix}\\ \text{[(ADV)]}\\ \text{MOD}\quad\quad\text{TNS}\left\{\begin{matrix}\underline{[ing]}\\ \text{[+PAST]}\end{matrix}\right\}_V\end{matrix}\right\}$   $]$   X

       1       2                               3                    4

S.C.   (1)  NOM-S:  attach 3 as first daughter of 2
       (2)  ART-S, NP-S:  attach 3 as left sister of 2

COND:  Obligatory

<u>Example</u>:   the tall boy, the sleeping child, the well-fed horse,
              the burned carpet

Tree:



<u>Ordering Arguments</u>:

(1)  There are no strong arguments for ordering this rule before GENPOSTPOSE.
However, we wanted to keep the Rel.Clause rules together.

(2)  This rule must precede NOUN REDUCT TO <u>ONE</u>, since the latter rule
deletes identical modifiers.

NOUN REDUCT TO ONE                                    Order No. 40

Rule:

S.I.   X $_{NP}$[X $_{NOM}$[X     N      X] X]X $_{NP}$[X $_{NOM}$[X     N      X] X]X

                    3                                  8

$$\begin{bmatrix} \propto \text{PLURAL} \\ (+\text{ACCUSE}) \\ (+\text{REFLEX}) \end{bmatrix} \qquad \begin{bmatrix} \propto \text{PLURAL} \\ (+\text{ACCUSE}) \\ \pi \text{ REFLEX} \end{bmatrix}$$
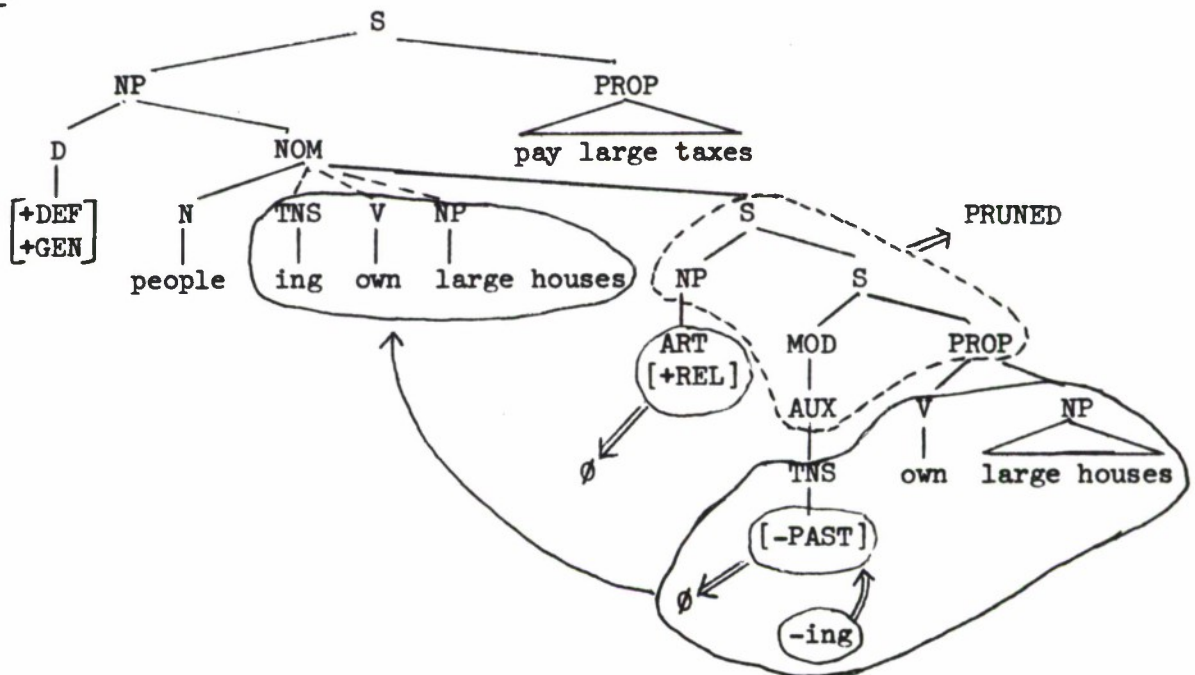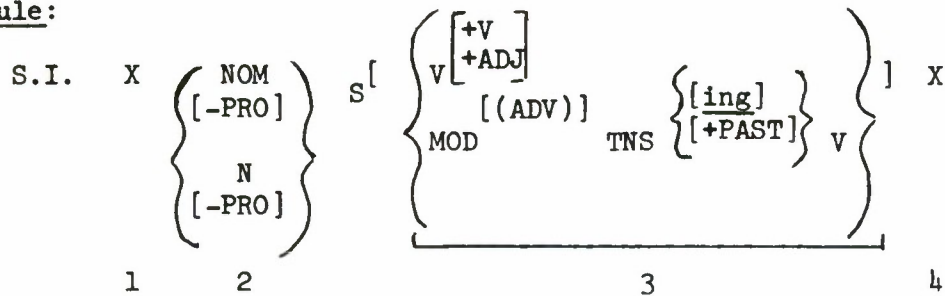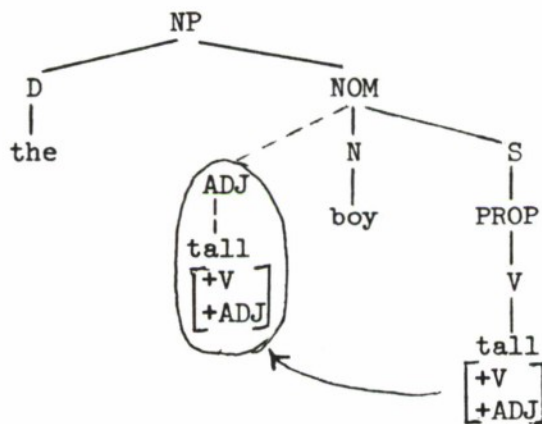
        1    2      4      5    6    7      9    10  11

S.C.   (1)  Attach [+PRO] to 9
       (2)  Erase all features in 8 not specified in 9

COND:  (1)  2 = 7, 3 = 8, 5 = 10
       (2)  If $\pi$ = [+], obligatory; if $\pi$ = [-], optional

Example:  Bob has a red pencil and I have a blue one (one = pencil).

Tree:
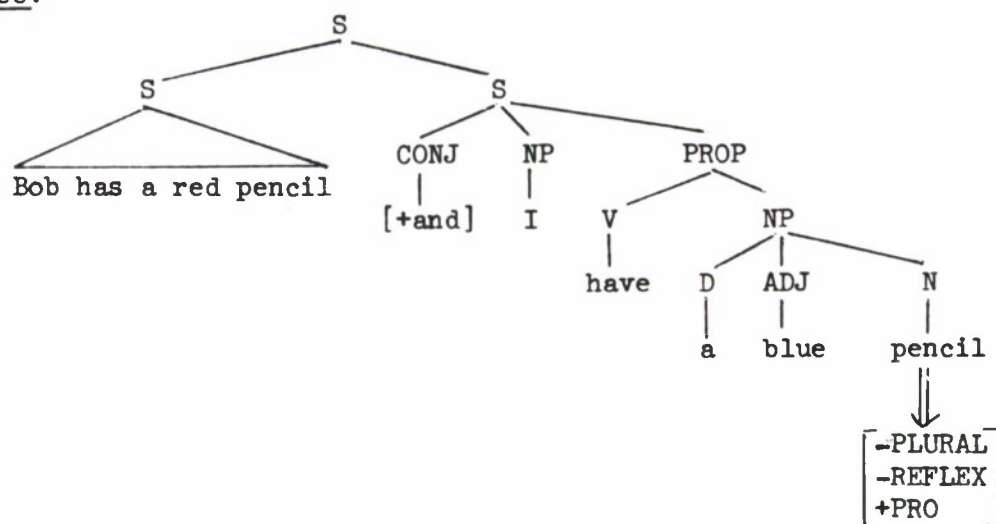


(The set of features becomes one in the second
    lexical look-up.)

Ordering Arguments:

(1)  This rule must precede NOUN $\Rightarrow \emptyset$, because only the reduced noun one
(from this rule) can be deleted; e.g.,

        (a)   *three boys of the boys $\Rightarrow$ *three ones of the boys $\Rightarrow$
                            three of the boys

(2)  Must precede PROPER NOUN THE DEL, in order to derive pronouns as in

        (b)  When John came in, he was tired.

_He_ starts out as a definite article on the second occurrence of _John_, and must be prevented from being deleted.  This is accomplished by ordering this rule before PROPER NOUN THE DEL, since the former rule deletes (among other things) the feature [-COMMON], so that the structure index of PROPER NOUN THE DEL will no longer be met.

NOUN $\Rightarrow \emptyset$                                    Order No. 41

<u>Rule</u>:

S.I.   X $_{NP}[$ $_{DET}[$ X [+NDEL] $\begin{bmatrix} \propto PL \\ \beta \text{ COUNT} \\ +PRO \\ -REFLEX \end{bmatrix}_N$ X $]$ X

          1                2    3            4            5    6

S.C.   (1)  Attach [+PRO] to 3
          (2)  Erase 4

COND:  (1)  If $\propto$ = [-], and $\beta$ = [+], and 3 = $\begin{bmatrix} +DEF \\ +DEM \end{bmatrix}$ , then 5 = $\emptyset$
          (2)  Obligatory

<u>Example</u>:  After he had eaten, Fred went to the movies.

<u>Tree</u>:
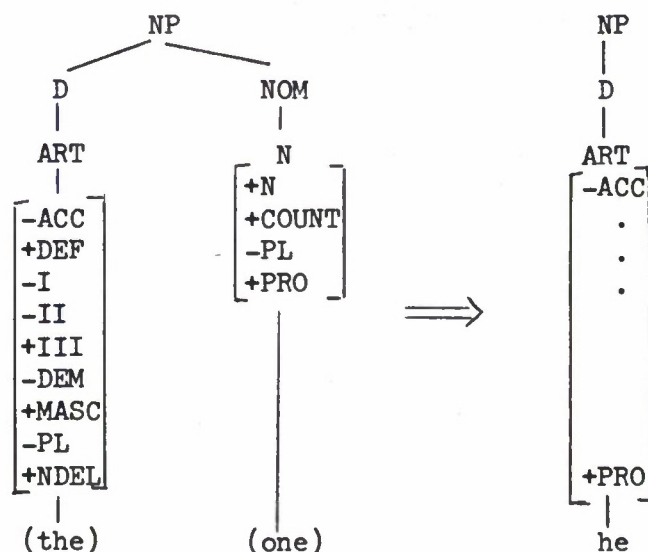


<u>Ordering Arguments</u>:

(1)  Must precede ALL THE because the latter deletes <u>of</u> in the string <u>all of the NOUN</u>, and NOUN$\Rightarrow\emptyset$ creates the environment for ALL THE to apply.

(2)  Must precede QUANT MOVE, in order to avoid

          (a)  *ones the boys each left

PROPER NOUN <u>THE</u> DEL                          Order No. 42

<u>Rule</u>:

S.I.    X    $_{NP}$[ $_{ART}$[$^{+DEF}_{-DEM}$] $_N$[-COMMON] ]   X
        1              2          3          4

S.C.    Erase 2

COND:   (1)   4 does not contain ($\neq$) S + X
        (2)   Obligatory

<u>Example</u>:   John ate the meat.

<u>Tree</u>:
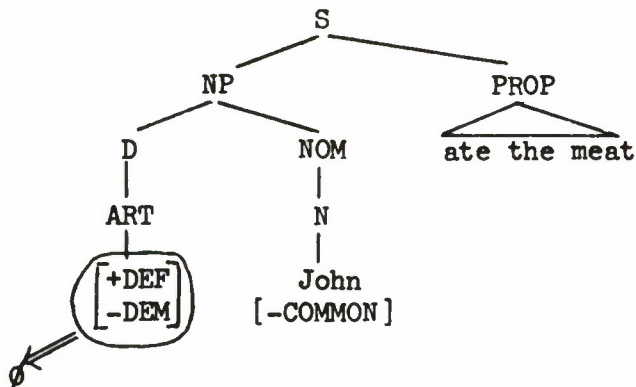


<u>Ordering Arguments</u>:

(1)  There are no strong arguments that this rule must precede any of the following rules; i.e., this is simply the earliest place at which it can be ordered.

S-INITIAL ADV PLACE

<u>Rule</u>:

    S.I.   # NP $_{MOD}$[ X ADV AUX ] X

            1           2

    S.C.   (1)  Attach 2 as right sister of 1
           (2)  Erase original 2

    COND:  Optional

<u>Example</u>:  Hardly ever does John forget his lunch.

<u>Tree</u>:
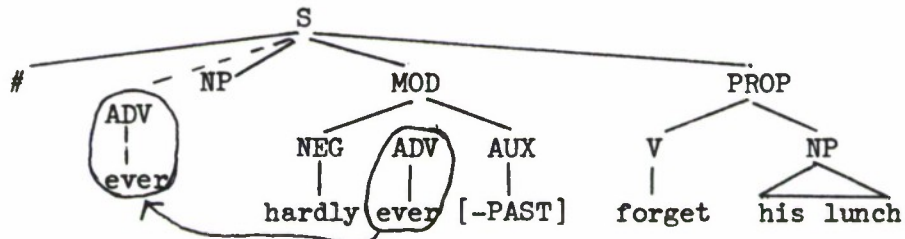


[the NEG (<u>hardly</u>) will be preposed by the next rule (NEG ATTRACT)]

<u>Ordering Arguments</u>:

(1)  Must precede NEG ATTRACT to account for

        (a)  Hardly ever does John forget his lunch.
        (b)  Sometimes John forgets his lunch.

(2)  Must precede AUX ATTRACT for the same reason (same examples).

NEG ATTRACT                                          Order No. 44

Rule Part a:

S.I.    X   [+INDET] (QUANT)   X   NEG   X

        1        2             3    4    5

S.C.    (1)  Attach 4 as left sister of 2
        (2)  Erase 4

COND:   (1)  If 4 = ADV, then 2 ≠ [-HARDLY] + X
        (2)  1 ≠ X [+INDET] X
        (3)  Obligatory

Example:  No-one showed up.
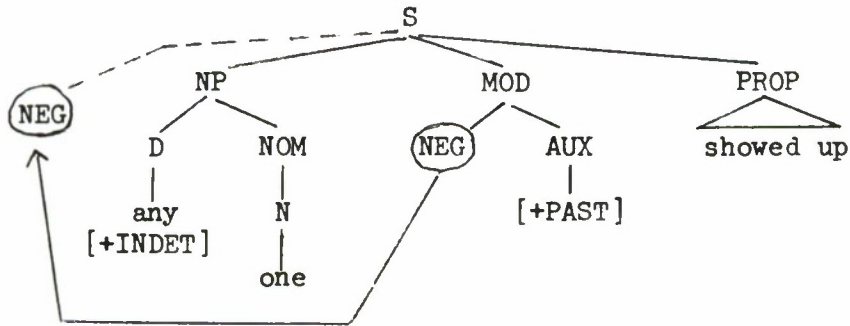
Tree:



Part b:

S.I.    X   NEG   X   [+INDET]   X
        1    2    3       4      5

S.C.    (1)  Attach 2 as left sister of 4
        (2)  Erase 2

COND:   (1)  3 ≠ X [+INDET] X
        (2)  5 ≠ X QUANT
        (3)  Obligatory

Example:  No-one showed up.

Tree:
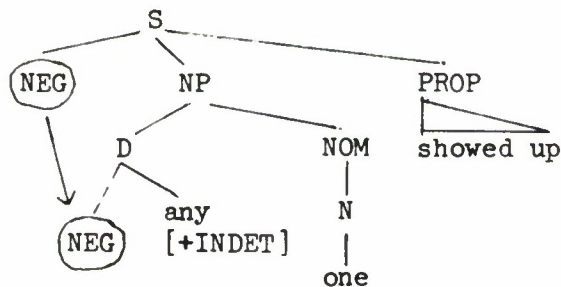
Ordering Arguments:

(1)  Must precede INDEF-BEFORE-QUANT DEL, so that the [+INDET] ART which triggers NEG ATTRACT is still present.

(2)  Must precede ANY-NO, because the latter rule depends on a NEG as first daughter of the D(eterminer) node.

INDEF-BEFORE-QUANT DEL                                   Order No. 45

Rule:

S.I.   X   $\text{ART}\begin{bmatrix}-\text{DEF} \\ -\text{DEM}\end{bmatrix}$   QUANT   X

    1        2     3   4

S.C.   Erase 2

COND:  Obligatory

Example:  Many people left.

Tree:
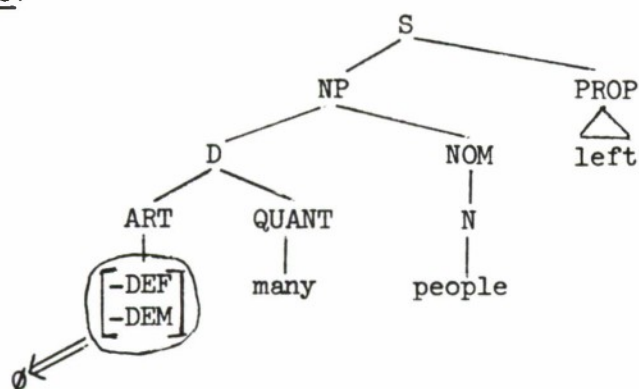


Ordering Arguments:

(1)  Must precede QUANT MOVE, because otherwise

      (a)   a each of the boy

will become

      (b)   *a the boy each

and we will need a separate rule deleting the indef. ART preceding the definite ART.

(2)  Must precede ANY-NO, otherwise we would derive

      (c)   *no many people

(from   NEG $\text{ART}\begin{bmatrix}-\text{DEF} \\ +\text{INDET}\end{bmatrix}$ $\text{QUANT}[\text{many}]$ people) instead of

      (d)   not many people

ANY-NO                                                    Order No. 46

Rule:

S.I.    X      NEG     $\begin{bmatrix} -DEF \\ +INDET \end{bmatrix}$   X
               [+COMPLETE]

        1       2          3        4

S.C.    (1)   Add 2 as feature to 3
        (2)   Erase original 2

COND:   (1)   Optional if 3 dominates <u>ever</u>, and 1 ≠ #
              Obligatory otherwise

Example:   No-one showed up.

Tree:
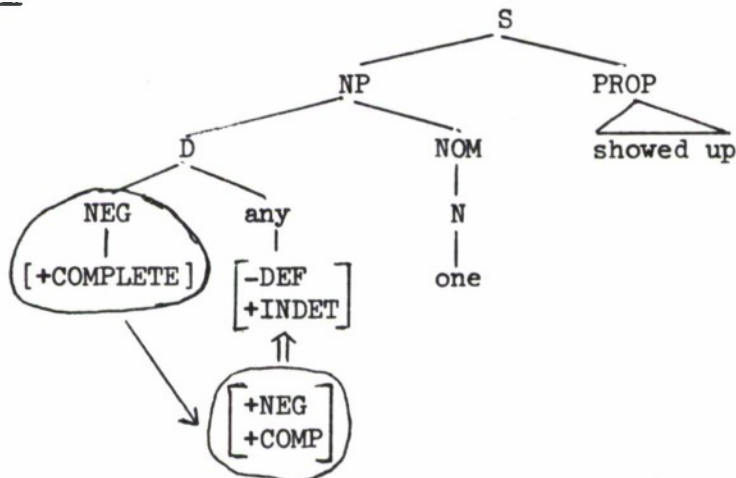


Ordering Arguments:

(1)  No arguments why this rule must precede <u>BE</u>-INSERT; i.e., ANY-NO is
the last rule of this block.

QUANT MOVE[1]                                    Order No. 47

<u>Rule</u>:

    S.I.   X   $_{QUANT}$[+SHIFT]  <u>of</u>  $_{NP}$[D N]  X  TNS  X

           1    2           3     4 5  6   7   8

    S.C.   (1)  Attach 2 as left sister of 7
           (2)  Erase 2 and 3
           (3)  Erase [+ACCUSE] in 4

    COND:  Optional

<u>Example</u>:  The boys each have left.

<u>Tree</u>:
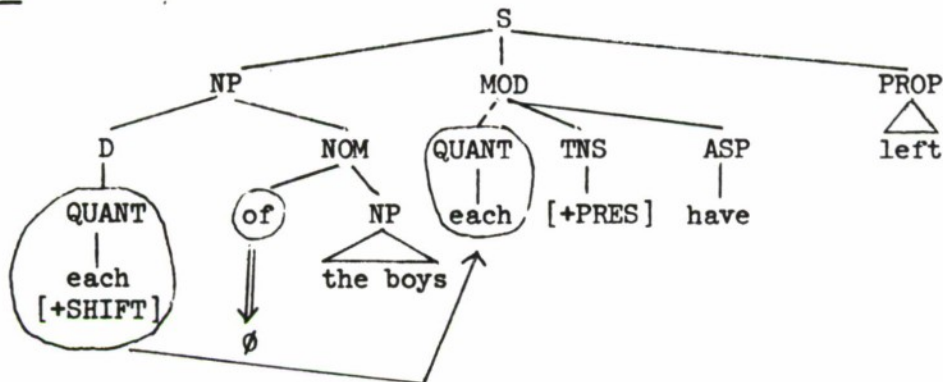


<u>Ordering Arguments</u>:

(1)  There are no strong arguments why this rule must precede ALL THE, because both rules are optional.  Hence

          (a)  all of the boys   ⤳ (QUANT MOVE) ⟹ the boys all left

                         ⤳ (ALL THE)  ⟹  all the boys left

(2)  The rule is not ordered with respect to ALL THREE, since the latter rule has $_{QUANT}$[+INTEGER] in its S.I., while QUANT MOVE has $_{QUANT}$[+SHIFT].

(3)  Must precede NBR AGREE to derive

        (b)  They each <u>have</u> left.
        (c)  Each of them <u>has</u> left.

(4)  Must precede PRE-Vb ADV MOVE because the QUANT, after it was moved into the ADV slot (the one preceding TNS), can be moved like an Adv; e.g.,

        (d)  The boys have all left.

Although our rules do not actually move the QUANT like an adverb (into post-verbal position), we feel that in principle this is how things should work.

(5) We account for examples like

    (e) Each of them had a piece of pie.
    (f) They each had a piece of pie.

by the ad hoc device of deleting the feature [+ACCUSE]. This is not offered as a solution, but only as a way of avoiding an ordering paradox. We know very little about ACCUSE MARK, and do not account for e.g.,

    (g) Who did you come with?
    (h) The man who John came with...

---

[1]This rule slightly changed from an earlier version.

ALL THE

**Rule:**

S.I.    X    $\begin{bmatrix} \underline{all} \\ \underline{both} \end{bmatrix}$    _of_    $_{ART}[+DEF]$    X

        1      2            3          4        5

S.C.    Erase 3

COND:   Optional

**Example:**   All (of) the boys left.

**Tree:**

```
                            S
                     _____/ _____
                    NP            PROP
                   / |             |
                  /  |             |
                 D   NOM           V
                /\    |            |
               /  \   |          left
              /    \  |
           all (of) ART  N
              ||    |    |
              ||  [+DEF] boys
              \/
              Ø
```
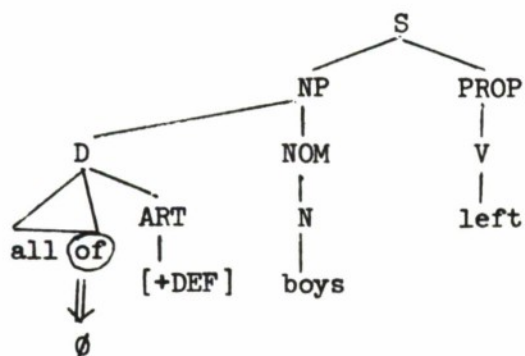
**Ordering Arguments:**

(1)  Must precede ALL THREE, because it sets up the environment for the latter rule.

ALL THREE                                                    Order No. 49

**Rule:**

S.I.    X  <u>all</u>  $_{ART}\begin{bmatrix}+DEF\\-DEM\end{bmatrix}$  $_{QUANT}[+INTEGER]$  X

       1  2      3           4     5

S.C.    Erase 3

COND:   Optional

**Example:**  All (the) three boys left.

**Tree:**

```
                                S
                       /                 \
                      NP                  PROP
                  /        \               |
                 D          NOM            V
             /   |   \       |             |
           all  ART QUANT    N            left
                 |    |       |
              [+DEF] three   boys
              [-DEM]  |
               ∅   [+INTEGER]
```

**Ordering Arguments:**

(1)  We have no arguments that this rule must precede PRE-VERBAL PRT
PLACE; i.e., this rule is the last of the preceding block.

BE INSERT                                                    Order No. 50

Rule:

S.I.    X  PROP [ [ +V
                    +ADJ ]  X

        1   2       3      4

S.C.    Insert be as first daughter of 2
                [+V]

COND:  Obligatory

Example:  John is not happy.

Tree:
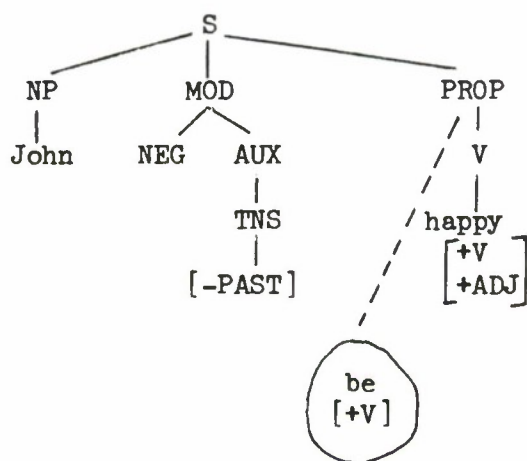


Ordering Arguments:

(1)  Precedes AUX ATTRACT because the be inserted by this rule is one of
the AUX's attracted by the latter rule; cf.,

    (a)  Is he happy?

(2)  Precedes PRE-Vb PRT because the latter rule also attracts the be, cf.,

    (b)  John is not happy.

(3)  Precedes AFFIX SHIFT to account for e.g.,

    (c)  Mary isn't pretty.

(4)  Precedes NEG CONTRN to account for e.g.

    (d)  Mary isn't pretty.

PRE-VERBAL PRT PLACE                                    Order No. 51

**Rule:**

S.I.    X   NEG (ADV)   $\left\{\begin{matrix} TNS & & V \\ & \begin{pmatrix} M \\ TNS \end{pmatrix}\begin{Bmatrix} M \\ HAVE \\ BE \end{Bmatrix} & X \end{matrix}\right\}$   X

        $\underbrace{\hspace{1.5cm}}$  $\underbrace{\hspace{2cm}}$  $\underbrace{\hspace{1cm}}$

           1        2              3          4

S.C.   (1)  Attach 2 as right sister of 3
       (2)  Erase original 2

COND:  Obligatory

**Example:**  John didn't often visit his mother.

**Tree:**
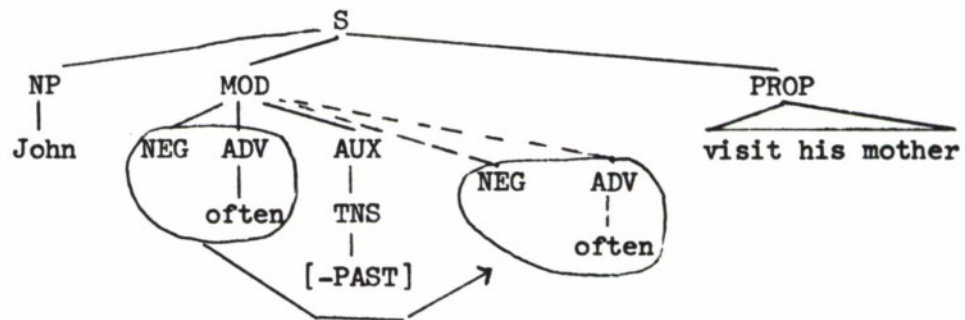


**Ordering Arguments:**

(1)  Must precede AUX ATTRACT because NEG can attract with AUX, cf.,

        (a)  Doesn't he like it?
        (b)  Hasn't he left?

PRE-VERBAL ADV PLACE                                    Order No. 52

**Rule:**

S.I.   X   ADV   TNS $\begin{Bmatrix} M \\ HAVE \\ BE \end{Bmatrix}$   X

       1    2          3              4

S.C.   (1)  Attach 2 as right sister of 3
       (2)  Erase original 2

COND:  Optional

**Example:**  John has often seen the sea.

**Tree:**
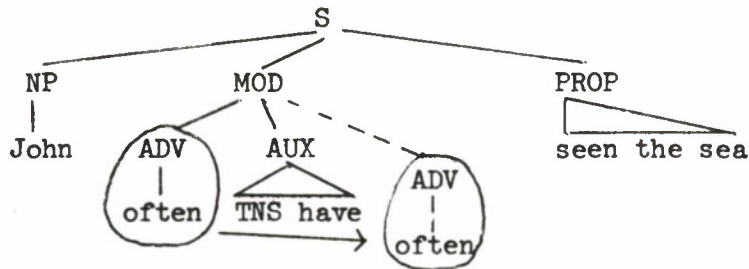


**Ordering Arguments:**

(1)  There are no strong arguments for placing this rule here.

920

CONJ SPREAD SCHEMA[1]                                    Order No. 53

Rule:

A
|
CONJ   $A_1$ ... $A_n$       $\Rightarrow$       $A_1$ ... $A_n$
|
[+X]                                    CONJ      CONJ
                                        [+X]      [+X]

COND:  Obligatory

Example:

S

CONJ   S      S      $\Rightarrow$   S          S
[+and]
       John sang Bill danced         CONJ  John  sang   CONJ  Bill danced
                                     [+and]              [+and]
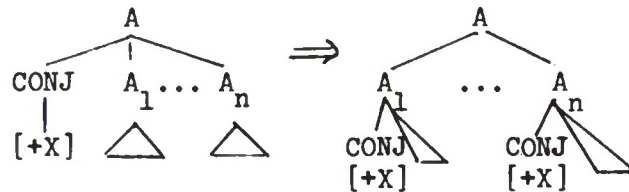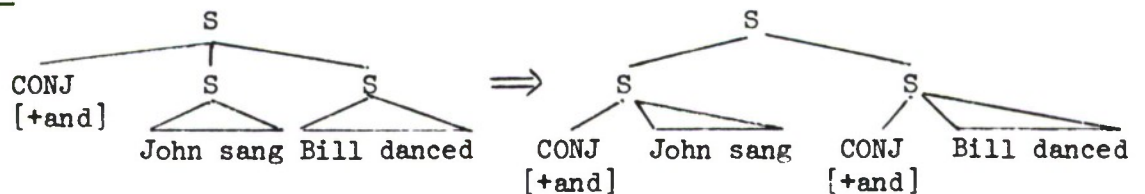
Ordering Arguments:

(1)  Must precede AUX ATTRACT because it is one of the reasons why the AUX is attracted.

(2)  Must precede EITHER INSERT (CONJ p.110)

(3)  Must precede WH DEL (if there is such a rule), since the latter rule deletes the feature [+WH].


Note:  CONJ
       $\begin{bmatrix} +OR \\ +WH \end{bmatrix}$   is one of the CONJUNCTIONS spread by this schema.  This

CONJ is used for alternative (Yes-No) questions.

---

[1]This rule slightly changed from earlier version.

WH COPY                                                          Order No. 54

Rule:

S.I.   #   $\text{CONJ}^{[+WH]}$   #   X   #   $\text{CONJ}^{[+WH]}$   #   X #

       1   2        3    4   5   6   7        8    9   10

S.C.   (1)  Attach 3 and 8 as right sisters of 4 and 9 respectively
       (2)  Erase 3 and 8 from complex symbols 2 and 7 respectively
       (3)  Insert CONT as left sister of 6

COND:  Obligatory

Example:  Does he snore (or doesn't he snore)?

Tree:
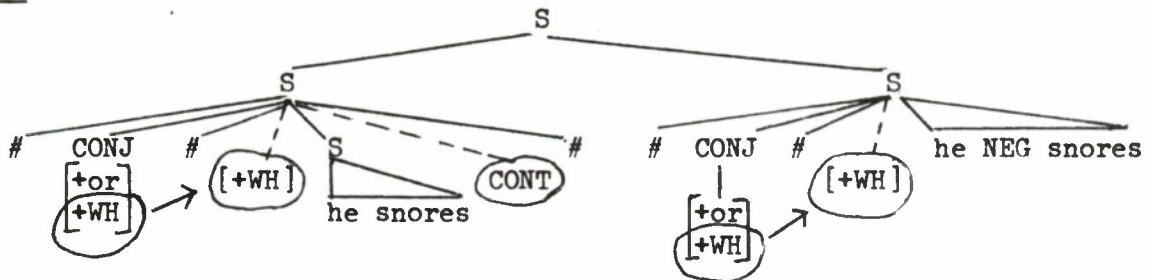


Ordering Arguments:

(1)  Must precede WH DEL (if that rule is needed) for obvious reasons.

(2)  Must precede AUX ATTRACT, because [+WH] is one of the reasons why
AUX is attracted.

(3)  (This rule may not be needed if CONJ SPREAD SCHEMA is changed as
indicated on the preceding page.)

AUX ATTRACT

Rule:

S.I.    (S CONJ)\* #  $\begin{bmatrix}ADV\\NP\end{bmatrix}$  [X  $\left\{\begin{matrix}[+WH]\\ [+NEG]\end{matrix}\right\}$  X] X TNS ( $\left\{\begin{matrix}M\\HAVE\\BE\end{matrix}\right\}$ ) (NEG) (ADV) X #

        1     2   3            4  5    6     7    8  9 10

S.C.    (1)   Attach 5,6,7 as right sister of 3
       (2)   Erase original 5,6,7

COND:   (1)   If 6 = ∅, 9 = $[^{+V}_{-BE}]$X

       (2)   Obligatory
       (3)   Last cyclic

Example:   Seldom has he mentioned her.
           Does he snore (or doesn't he snore)?

Tree:
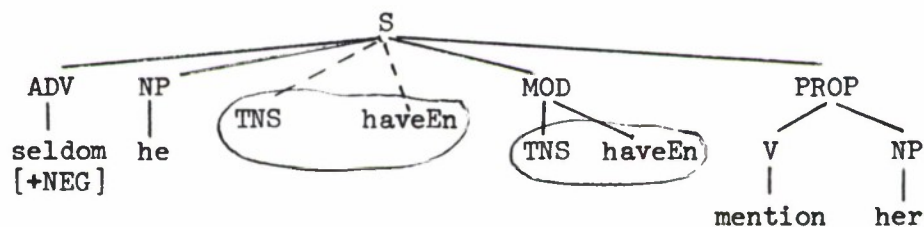


Ordering Arguments:

(1)  Must precede DO SUPPORT for obvious reasons.  Therefore, the rule is last-cyclic, and not post-cyclic.

(2)  Must precede WH DEL, since the WH provides the environment for AUX ATTRACT.

(3)  Must precede NEG CONTRCN, because the latter rule operates on the environment created by AUX ATTRACT.

WH DEL (THIS RULE MAY NOT BE NEEDED)                Order No. 56

**Rule:**

S.I.    #   [+WH]   TNS   X
        └─────────┘
        1     2      3

S.C.    Erase 2

COND:   (1)   Last-cyclic
        (2)   Obligatory

**Example:**   Are you coming (or aren't you coming)?

**Tree:**
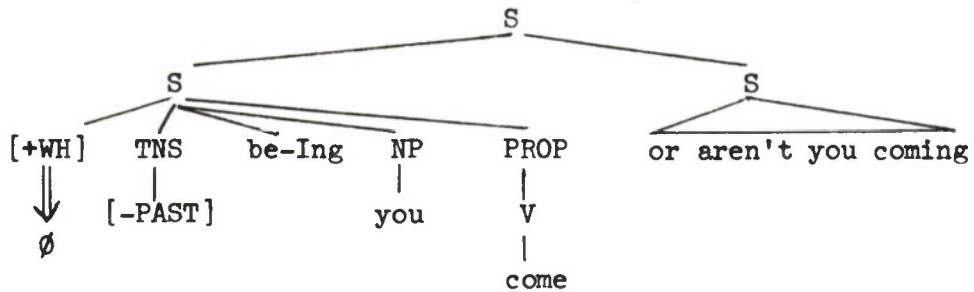


**Ordering Arguments:**

(1)  (We can do without this rule if we change the CONJ SPREAD SCHEMA as indicated above.)

AFFIX SHIFT                                          Order No. 57

Rule:

S.I.     X   $\left\{\begin{array}{l} \text{TNS} \\ \text{EN} \\ \text{ING} \\ \text{SJC} \end{array}\right\}$   $\left\{\begin{array}{l} \text{M} \\ \text{HAVE} \\ \text{BE} \\ \text{V} \end{array}\right\}$   X

              1        2          3       4

S.C.   (1)   Chomsky adjoin 2 to the right of 3
       (2)   Erase original 2

COND:  (1)   Obligatory
       (2)   Last-cyclic[1]

Example:   John loved Mary.

Tree:
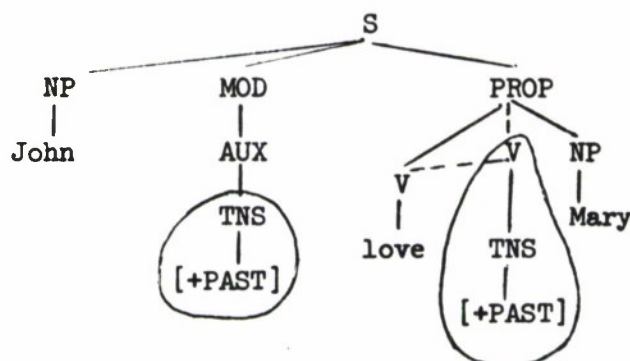


Ordering Arguments:

(1)   Must precede DO SUPPORT in order to get

        (a)   John didn't go home.
        (b)   Did you see the man?

since affixes can only be shifted across elements marked [+VERBAL].

(2)   Must precede NEG CONTRCTN, because NEG contracts only in the
      environment $\left\{\begin{array}{l} [\text{+TNS}] \\ [\text{+SJC}] \end{array}\right\}$.

---

[1]This rule must be last-cyclic, applying to all levels of the tree.
This is because all embedding rules which deform AUX require deep structure
AUX's for input and introduce new stems and affixes in their output; hence,
the embedded AUX must not have undergone AFFiX SHIFT on its own cycle.

DO SUPPORT                                              Order No. 58

Rule:

S.I.    X   $\left\{\begin{matrix}TNS\\SJC\end{matrix}\right\}$   X

        1    2      3

S.C.   Attach <u>do</u> as left sister of 2

COND:   (1)   2 is not dominated by  $\left\{\begin{matrix}PERF\\PROG\\M\\V\end{matrix}\right\}$

        (2)   Obligatory

Example:   Does he snore (or doesn't he snore)?

Tree:

```
                              S
              S                            S
      do   TNS   NP   PROP       do   TNS   NEG  NP  PROP
           |     |    |               |          |   |
        [-PAST]  he   V            [-PAST]       he   V
                      |                               |
                    snore                           snore
```
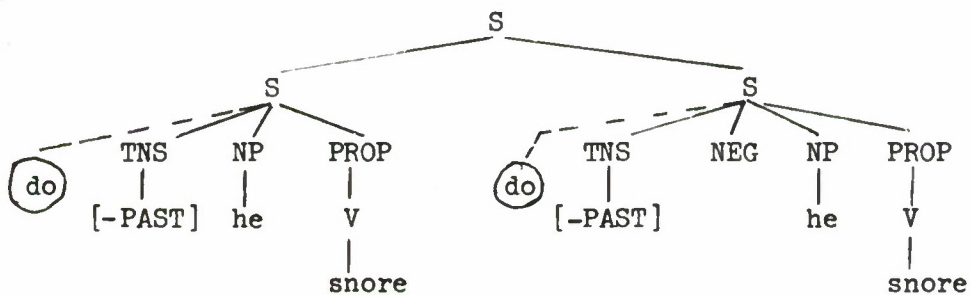
Ordering Arguments:

(1)  Must precede NEG CONTRCTN for obvious reasons.

NEG CONTRCN                                          Order No. 59

**Rule:**

S.I.   X $\begin{Bmatrix} TNS \\ SJC \end{Bmatrix}$   NEG   $\begin{Bmatrix} [+V] \\ NP \end{Bmatrix}$   X

       1   2      3      4        5

S.C.   Add [+CNTR] as feature to 3

COND:  Obligatory if 4 = NP; optional otherwise

**Example:**   John hasn't seen the doctor yet.

**Tree:**
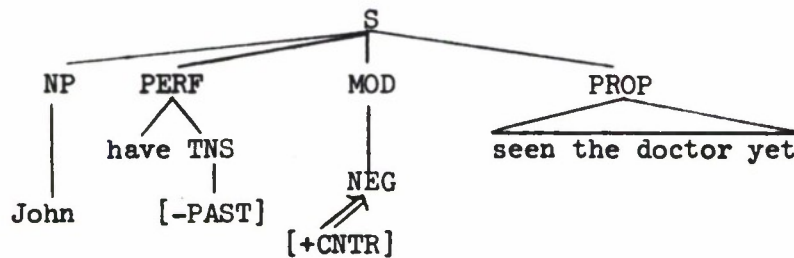


**Ordering Arguments:**

(1) There are no strong arguments why this rule must precede any of the following rules; i.e., this is simply the earliest point at which this rule may be ordered.

<u>TO DEL</u>                                                    Order No. 60

<u>Rule</u>:

S.I.    X       V         <sup>NP</sup>[ <sup>S</sup>[ <sup>AUX</sup>[to X]
                [+TO DEL]

                        ⌞_____⌟

                    1               2   3

S.C.    Erase 2

COND:   Obligatory

<u>Example</u>:   Fred saw John beat his wife.

<u>Tree</u>:
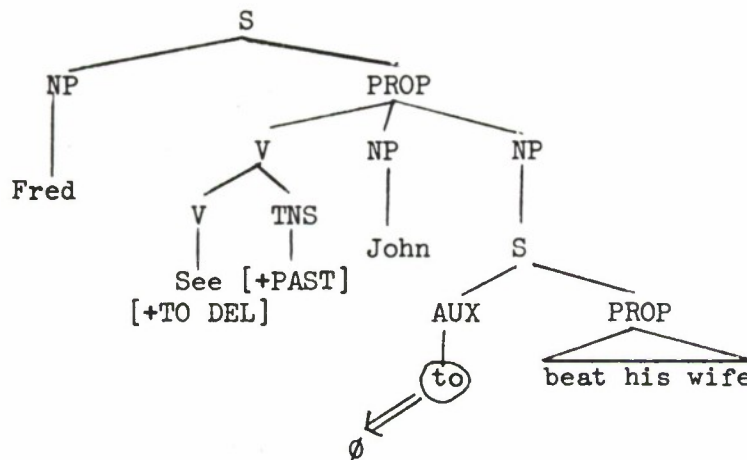


<u>Ordering Arguments</u>:

(1) There are no strong arguments for placing this rule here, since the
rule is not ordered with respect to any rule other than TO REPLACE AUX,
which it must follow and TO BE DEL, which it must precede.  Because this
rule is governed, it is not surprising that ordering it is not crucial.

TO BE DEL                                         Order No. 61

Rule:

S.I.    X     V         $^{NP}$[ S [ X to $^{PROP}$[ be X
              [+TOBEDEL]

        |_____|

              1               2   3   4   5

S.C.    Erase 2 and 4

COND:   Obligatory

Example:  Fred thought Mary (to be) impulsive

Tree:
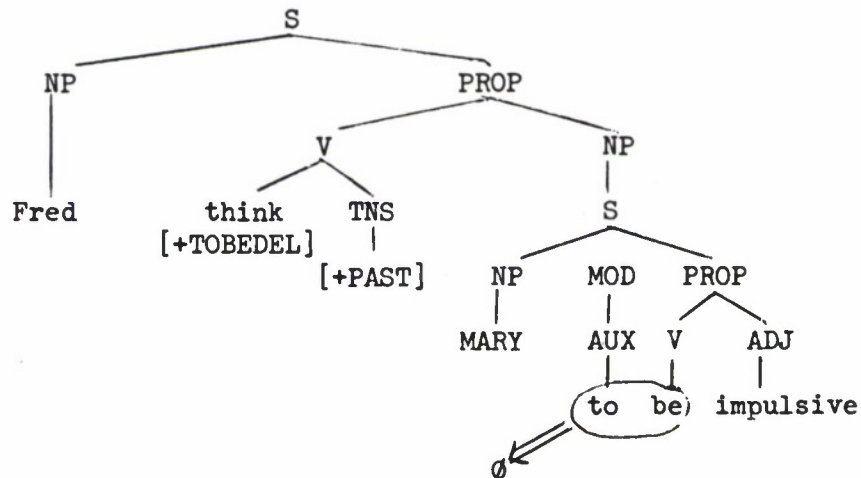


Ordering Arguments:

(1)  There are no strong arguments for placing the block TO DEL - TO
BE DEL here.  This is not surprising, because both rules are governed, and
are ordered only with respect to TO REPLACE AUX, which they must follow.

PREP DEL                                              Order No. 62

Rule:

   S.I.    X   PREP $\left\{\begin{array}{l}\text{that}\\\text{PREP}\end{array}\right\}$ X

           1    2       3       4

   S.C.   Erase 2

   COND: (1)  3 is not dominated by ART
         (2)  Obligatory

Example:   John hoped that Mary would be here.

Tree:
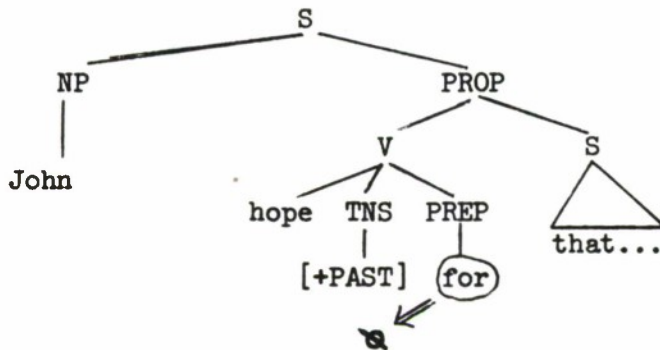


Ordering Arguments:

None.

July 1969

# SAMPLE LEXICON

## Contents

## I. BIBLIOGRAPHY

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## II. FIRST LEXICAL LOOKUP

### A. Discussion

### 1. Introduction

There are many ways in which the present lexicon is pro-
visional and exploratory. Late changes in a number of rules
(particularly Nominalization) have prevented testing it for
internal consistency; the decision not to include selectional
restrictions systematically has left crucial areas unexplored;
doubts about the number of cases in the proposition have made it
difficult to resolve a number of questions; and the fact that the
ordering of the rules had not been definitely fixed at the time the
lexicon was compiled has meant that the redundancy rules are in-
complete. Moreover, new problems arose during the compiling of
the lexicon which it has not been possible to investigate fully
in relation to the grammar as a whole.

However, this preoccupation with the problems does not
mean that no progress has been made in specifying lexical entries.
Small-scale computer tests of lexical insertion using interim grammars
"AFESP Case Grammars I and II" were run in March and May 1968
respectively at Stanford University, employing J.Friedman's
system (Friedman and Bredt, 1968) and the results were encouraging
enough to suggest that the form of the lexical entries is at least

coherent. Since the time when the tests were run, the scope of
the grammar has increased considerably with a consequent increase
in the complexity of the lexical entries, but it is assumed that
essentially the same format will continue to work.

## 2. Order of Insertion of Lexical Items

In the earliest kinds of transformational grammars
lexical items were introduced by the terminal rewriting rules
of the phrase structure component. Chomsky (1965) suggested two
alternative ways of inserting lexical items so as to take into
account strict subcategorization and selectional restrictions.
In the first of these, the base component includes rewriting rules
which introduce complex symbols (sets of specified syntactic
features) so that the output of the base component is a "pre-
terminal string" consisting of complex symbols and grammatical
formatives. The lexicon consists of an unordered list of lexical
entries, each of which is a phonological matrix for a lexical
formative accompanied by a complex symbol containing a collection
of specified syntactic features. A terminal string is formed by
inserting for each complex symbol in the preterminal string a
lexical formative whose complex symbol is not distinct from that
of the given complex symbol. (Two symbols are not distinct if
there is no feature which is positively specified in one symbol
and negatively specified in the other.) However, the use of
rewriting rules to introduce complex symbols into the preterminal
string of a tree has the effect of changing the base component
from a phrase structure grammar to a kind of transformational
grammar. Consequently, Chomsky proposed an alternative method
of inserting lexical entries. For this purpose, the base com-
ponent is divided into a categorial component and a lexicon.
The categorial component is context-free phrase structure grammar
whose output is a string of dummy symbols, "$\triangle$", (to mark the
position of the lexical categories ) and grammatical formatives.
The lexical items are then inserted by a substitution transforma-
tion where the complex symbol in the lexical entry is the structure
index for the transformation, and the lexical item is appropriate
for substitution if the tree meets the conditions of the structure
index specified by the complex symbol.

It is the second of these alternatives that we have
adopted, primarily for the practical reason that it permits
greater latitude and flexibility in making and changing decisions
about the lexicon while leaving the categorial component fixed.
However, for a variety of reasons, both practical and theoretical,
we have incorporated a feature of Friedman's system whereby
verbs are inserted before nouns. Chomsky (1965: 114-115) argued
against the insertion of verbs before nouns on the grounds that

the complex symbols for the nouns would require such features as

[ PRE- +[+ABSTRACT]-SUBJECT, PRE- +[+ANIMATE]-OBJECT]

and   [ POST- +[+ABSTRACT]-SUBJECT, POST- +[+ANIMATE]-OBJECT]

for the subject and object respectively of a verb such as <u>frighten</u>.
Chomsky pointed out that these specifications were excessively
redundant since "the feature [PRE- +[+ANIMATE]-OBJECT] is irrele-
vant to choice of Subject Noun, and the feature [POST- +[+ABSTRACT-
SUBJECT] is irrelevant to choice of Object Noun".  Chomsky
maintained that there was "no alternative to selecting Verbs in
terms of Nouns ... rather than conversely."  However, it turns
out that the insertion of verbs first need not lead to such un-
wieldy specifications.

This is because of what Friedman has called "side effects."[1]
Side effects are effects on other nodes in a tree after an item
had been inserted.  Thus, if verbs are inserted first, the selectional
features in the complex symbol for the verb must be specified for
the relevant category nodes in the tree.  Friedman and Bredt give
the example of <u>admire</u>, which is positively specified for animate
subject, thus requiring  the corresponding NP to be so specified.

```
                        # ———— S ———— #
                       /               \
                     NP                 VP
                      |                 / \
  ⎡ + N        ⎤      |   ⎡ + V      ⎤  |   NP
  ⎢ + ANIMATE  ⎥ ... N   ⎢ + TRANS   ⎥...V   / \
  ⎣ - ABSTRACT ⎦         ⎣ + ANIMSUBJ⎦  |  DET  N
                                      admire
```
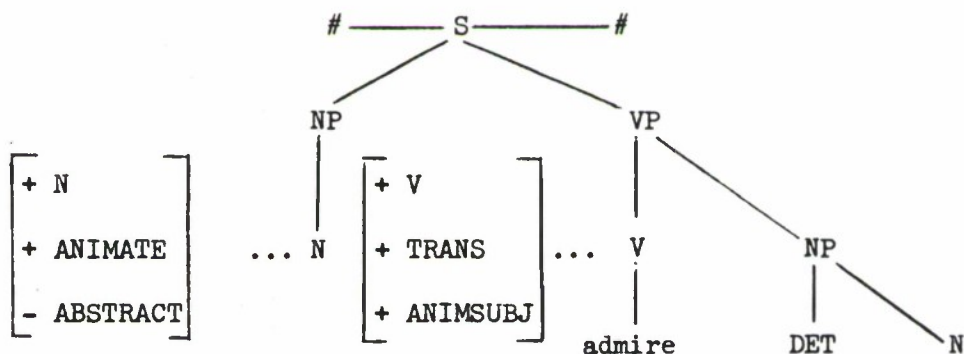
[Friedman and Bredt, 1968: 30]

Side effects thus achieve the same ends as were gained by Chomsky
in making verbs selectionally dependent on nouns, so that, in
many ways, Chomsky's system and Friedman's can be considered
notational variants of each other.

---

(1)  This notion is similar to that of "transfer features" as
     proposed by Weinreich (1966) to account for certain semantic
     questions of disambiguation, selectional deviance, etc.

We have provisionally adopted Friedman's approach because the notion of side effects seemed sufficiently promising to bear further exploration, particularly in terms of a deep case grammar. Moreover, the insertion of verbs first makes for much more economical testing in a computerized program, because random selection of nouns will lead to a large number of "impossible" strings in which no verb can be inserted. Nor is this a purely practical issue, since in a very real sense verbs are selectionally dominant. It must be admitted, however, that the theoretical implications of side effects need investigating more fully than we have been able to do thus far. Part of the difficulty is that we have not investigated selectional restrictions in any depth but even at this early exploratory stage it is clear that there are problems which we do not yet know how to handle. For example, as Friedman and Bredt point out, negatively specified selectional restrictions cause problems since a verb marked for [-ANIMATE SUBJECT] would be acceptable for insertion in a tree such as
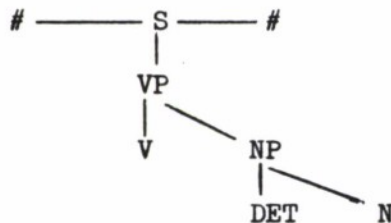
```
# ——— S ——— #
          |
         VP
          |
      V      NP                    [Friedman + Bredt, 1968:32]
              |
           DET      N
```

though this is presumably wrong. Consequently, Friedman and Bredt conclude that contextual features containing selectional restrictions should be positively specified. We have adopted this principle but it causes problems for which we have at present no solution. The difficulty is not with the animacy of subjects since we are assuming that agents and datives are always [+ANIMATE], though as we shall see below this is not altogether correct.

The trouble arises with a selectional restriction which applies to an optional contextual feature. For example, the verb answer must take an agent and may or may not take a dative or neutral case:

(1) (a) Nobody answered (AGT)
    (b) Nobody answered John (DAT)
    (c) Nobody answered the question (NEUT)

If we now wish to place a selectional restriction on the verb to allow only an abstract object[1] this must be positively specified

_____

[1] We are assuming that the verb in he answered the door is a different verb. The example is perhaps unfortunate because of sentences such as he answered the letter, which raises other questions, but it is the point being illustrated which is important not the particular example.

[+ [+ABSTRACT] OBJECT]. However, we have now assigned (by side effects) a feature to a constituent which may not be present. If we followed Chomsky, the restriction could be negatively specified, [- [+CONCRETE] OBJECT], and this would leave the presence of the object optional, but as we have seen negatively specified features cannot have side effects. This may be an important argument against the use of side effects, but we are still hopeful that the principle may be saved. What we need is some kind of device that will indicate that if optional feature $[F_i]$ is present then it is positively specified for feature $[F_i]$. We could call this device "implicational specification" and employ a notation such as $[\&F_i [+F_i] ]$ which would mean $[+F_i]$ if and only if $[+F_i]$, otherwise $[-F_i]$. We could not use an alpha convention because, for reasons stated below, optional contextual features are left unspecified. However, we have not attempted to incorporate such a device into our specification of features because it is not absolutely clear that something of this nature will be required.

There are further problems in the ordering of lexical insertion which we have not resolved. In Friedman's algorithm embedded sentences are considered in lowest to highest, right to left order.[1] Lexical items are inserted for each lexical category node in the order specified in the lexicon (e.g. V N PREP ART, which would mean that verbs were to be inserted first, followed by nouns, prepositions, and articles). In each category, the order is left to right in the tree. This is the type of algorithm that was used in the test grammars I and II. However, since then certain problems have arisen. One of them is that the order of insertion of the category nodes has not yet been fixed, although we are assuming at the moment that verbs will be inserted before nouns. A more important point is that the use of side effects to specify selectional restrictions will in some cases require that subtrees be considered in highest to lowest order. For example, verbs such as <u>persuade</u> and <u>force</u> require that the verb in the lower embedded sentence be [ STATIVE]:

(2)  (a)  He persuaded them to be good
     (b)  *He persuaded them to be delighted

---

(1)  This is what the text says; in the accompanying diagram (p. 25) the order is shown as left to right. As the choice is presumably arbitrary and of no substantive significance the discrepancy is unimportant.

(c)  She forced him to eat it
(d)  *She forced him to know it

If such restrictions are to be specified by side effects,
the verb in the higher sentence will have to be inserted first,
which means top to bottom processing.  On the other hand, these
particular selectional restrictions are too weak to base such
a decision on, since the feature [+/-STATIVE] itself is not
particularly transparent and there are many putative [+STATIVE]
verbs which can occur after persuade and force.

(g)  He persuaded them to like it
(h)  He forced them to respect him

It seems likely that the constraints imposed by these verbs are
directly related to the Imperative, and only indirectly to the
feature [STATIVE]. [1]

## 3.  Form of Lexical Entries

The form of the lexical entries follows, in principle, the
lines of the Stanford University Computational Linguistics Project
(Friedman and Bredt, 1968).  Each vocabulary word has associated
with it a complex symbol containing four types of features:
category features, contextual features, inherent features and rule
features.  A category feature denotes a lexical category such as
noun or verb.  In the present format each complex symbol contains
only one positive specification for a category feature and this
means that there is no disjunctive ordering of related lexical
entries.  Thus, each vocabulary word which belongs to more than
one lexical category, e.g. torment, empty, has associated with it
a separate complex symbol for each lexical category.  Derivational
processes have also been ignored in the present lexicon.  Although,
in principle, we would like to have a single complex entry for
items such as produce, productive, production, product, etc.
and though we have tentatively explored some possibilities in
this direction, there are so many complex problems that nothing
has reached a formalizable state.  (See NOM for further discussion.)

---

(1) This whole question needs further investigation along the lines
    suggested by Gruber (1965), who posits causative agents, passive
    agents and non-agents.  Some such classification is relevant
    to the feature [STATIVE], as can be seen in the following
    examples:
        This report deals with export subsidies/*is dealing with
        John deals with your requests usually/is dealing with...today
        That matter does not concern me/*is not concerning me.
        I concern myself with such matters/I am concerning myself

    This problem is also related to that of Genericness (cf. Chapin,
    1967).  See below for the relationship between agency and stativity.

A number of the contextual features are represented by a "case-frame" (Fillmore, 1967a:35) in which the cases that can occur with a lexical item are shown. For example, Fillmore suggests the case-frame [____DAT (INS) AGT] as a suitable one for the verb kill in, say, the farmer killed the chicken (with an axe), where the parentheses round the instrumental case show that the instrument may be omitted. However, this case-frame will not account for the sentence the poison killed the chicken, since there is no agent, which is obligatory in the above frame. This situation can be covered by a second entry for kill with the case-frame [____ DAT INS] where the instrument is now obligatory and the agent omitted. Fillmore suggests an ingenious notation for combining these two entries by means of linked parentheses, which indicate that at least one of the two elements thus specified must be chosen, [____ DAT (INS⟨AGT)] to account for the sentences Mother is cooking the potatoes, the potatoes are cooking and Mother is cooking. However, cook may also optionally take a locative and an instrument, Mother is cooking on the stove, Mother is cooking with gas and these optional cases cannot be included in the case-frame with linked parentheses, given our decision that the order of cases is fixed, with LOC and INS both intervening between NEUT and AGT. Furthermore, we have (for reasons given below) chosen to specify obligatory contextual features positively, impossible contextual features negatively, and omit optional contextual features. Thus our case-frames for kill are:

$$[ \; \underline{\quad} \; - \; \text{NEUT} + \text{DAT} - \text{LOC} + \text{AGT}]$$

$$[ \; \underline{\quad} \; - \; \text{NEUT} + \text{DAT} - \text{LOC} + \text{INS} - \text{AGT}]^{(1)}$$

(The other contextual features are listed in the complex symbol immediately following the case-frame.)

However, this means that the number of entries is multiplied as an artifact of the system of notation. Although there are a number of ways in which this multiplication of entries could be avoided we have not adopted one because the choice at this stage would be arbitrary and would have the effect of concealing the problem rather than solving it. On the other hand, there are also polysemous items which need separate entries for distinct readings in any lexicon not simply as a consequence of the notation used. For example, sick[1] in John is being sick must

_____

(1) Whether the second entry should be specified [-AGT] or left unspecified for AGT is a question which appears to be an artifact of the representation. (Unspecified uses fewer features but predicts an unrealized ambiguity.)

be kept distinct from <u>sick</u>[2] in <u>John is sick</u>.  This corresponds
to a difference in the case-frames:

SICK[1]    +[____ -NEUT -DAT -LOC -INS +AGT]

SICK[2]    +[____ -NEUT +DAT -LOC -INS -AGT]

There is, thus, an important difference between the two entries
for <u>kill</u>, which are a consequence only of the lack of disjunctions
of features and sets of features in the present system of notation,
and the two entries for <u>sick</u>, which are semantically distinct,
though related.  We have accordingly chosen to indicate multiple
entries of the <u>kill</u> type by superscript lower-case letters (e.g.
KILL[a]) and polysemous items of the <u>sick</u> type by superscript
numerals (e.g. SICK[1]).  As might be expected, it is not always
easy to decide whether two entries are substantively different
or not.  For example, we have chosen to represent <u>sick</u> in <u>he is sick
of arguing about linguistics</u> as SICK[3]  although it might also belong
with <u>SICK[2]</u>.  This is a traditional problem for lexicographers and
no attempt has been made to deal with it systematically in the
present lexicon.  However, the problem forced itself on our attention
because of the semantic nature of deep-case relationships (e.g. the
relationship between the presence of AGENT and stativity -- see below)
and the use of such semantically based syntactic features as
[+/- FACT] and [+/- EMOT].  This is one of the ways in which the
nature of the present sample lexicon has changed as a consequence
of new rule features introduced into the grammar.  Moreover, it
has become increasingly obvious that the kind of features employed
in the present grammar need to be defined much more precisely than
they have been so far.  One of the benefits of even a small sample
lexicon such as the present one is that it draws attention to
difficulties in feature specification which might otherwise be
overlooked.

Inherent features denote qualities such as animate, human
and abstract.  Rule features refer to the transformations which can
apply to the lexical item, e.g. EXTRA (position), TO-DEL(etion).
(See NOM)

The number of inherent features will ultimately depend on
where the dividing line between syntax and semantics is drawn.
Since selectional rules are not included in the present grammar the
number of inherent features needed is quite small and no attempt
has been made to incorporate many of the features suggested in
recent treatments of semantic theory (e.g., Lakoff, 1963; Weinreich,
1966).  There is thus in this formulation no essential difference
between inherent features and rule features.

## 4. Feature Specification

When Chomsky (1965:81-83) first proposed the use of features for the specification of lexical entries similar to the form of phonological entries in a distinctive feature matrix, he only allowed three values for a feature, namely, positive, negative or unspecified. However, it is probable that at least four and possibly five values are necessary. This is partly because different kinds of features may require different values to be specified. For example, contextual features and rule features differ in this respect.

For contextual features, positive specification $[+F_i]$ means that such an element must occur in the proposition to allow insertion of the lexical item and negative specification $[-F_j]$ means that the lexical item cannot be inserted in the presence of such an element. Similarly, for rule features positive or negative specification will indicate whether a given governed rule must or cannot apply. However, there is an important difference between the two kinds of features when the feature may be either positively or negatively specified for a single lexical item. In the case of contextual features such a feature is genuinely optional since its presence or absence does not affect the insertion of the lexical item. Thus, in the present lexicon optional contextual features are left unspecified since the lexical item can be inserted whether the element is present or not. For example, the verb cook, as mentioned above has two entries, one for the transitive verb in Mary is cooking the meat (on the stove) (with gas) and the other for the intransitive verb in the meat is cooking (on the stove). The case-frames for these two entries are

cook[a]  [ _____ - DAT  +AGT]

cook[b]  [ _____ + NEUT - DAT - INS - AGT]

The first case-frame shows that cook[a] must take an agent, cannot take a dative, and may or may not take neutral case, a locative or an instrument. The second case-frame shows that cook[b] must take neutral case, cannot take a dative, instrument or agent, and may or may not take a locative, For contextual features, therefore, absence of specification means that the element may or may not be present.

The situation is rather different with respect to rule features. Let us consider the following examples:

(3) (a) I saw him leave.
    (b) Mary helped him (to) do it.

(c) The government wanted him to accept.
(d) He avoided {looking / *to look} at her.

We can see that with respect to the rule for TO-deletion (see NOM) there are not three possibilities but four. In (3a) the rule must apply, in (3b) the rule may or may not apply, in (3c) the rule does not apply, and in (3d) the rule is irrelevant since the structural description for the rule is not met. Items which never meet the structural description of the rule can be left unmarked but items where the rule is optional cannot be left unmarked for that feature because the rule will be specified as obligatory and will require the governing item to be positively specified. Consequently, in such cases we have "obligatory specification" $[*F_i]$, which means that the value of the feature is left unspecified in the feature index of the complex symbol but must be specified either positively or negatively before the complex symbol is inserted in a tree. Thus, for example, the complex symbols for the verbs see, help, want and avoid will contain the following specifications for the rule feature TO-DEL(etion): (1)

see        help        want        avoid

[ + TO-DEL] [ * TO-DEL] [ - TO-DEL]   [ ____ ]

However, since the optionality of governed rules is handled by "obligatory specification" and there are no transformations which required a feature to be negatively specified, it is possible for negatively specified rule features to be left unmarked in the lexical entry. This is equivalent to a redundancy rule:

$$[uF_i] \Rightarrow [-F_i] \text{ where } F_i = \text{rule feature}$$

In this respect, rule features and inherent features are treated differently.

It is possible that a five-valued system might be necessary for inherent features. For example, [+HUMAN] nouns must be specified for gender in order to allow correct pronominalization; thus, boy, man and brother are [+MASC] and girl, woman and sister are [-MASC]. However, nouns such as neighbor, teacher, doctor and cousin can be specified either positively or negatively for the

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(1) This is probably more mechanism than we need in many cases. However, our analysis has not yet reached the degree of subtlety where we can attempt to distinguish between major and minor rules. See Lakoff (1965) for a careful analysis of the possibilities.

feature [MASC], though it is not clear whether this is optional
or obligatory specification.  In any case, it is different
from the situation with the [-HUMAN] higher mammals, e.g. horse,
monkey and dog, which may be (but need not be) specified for
gender.  These in turn are possibly different from other forms
of life which are seldom, if ever, specified for gender, e.g.
fruitfly, worm and jellyfish.  If five values are necessary we
could adopt the following convention:

(1) + positive specification

(2) - negative specification

(3) * obligatory specification

(4) +/- optional specification

(5)  absence of specification would mean that the feature
     was irrelevant

This would provide (partial) entries of the following kinds:

| boy | girl | neighbor | mare | horse | fruitfly |
|-----|------|----------|------|-------|----------|
| $\begin{bmatrix} +\text{ N} \\ +\text{HUMAN} \\ +\text{ MASC} \end{bmatrix}$ | $\begin{bmatrix} +\text{ N} \\ +\text{HUMAN} \\ -\text{ MASC} \end{bmatrix}$ | $\begin{bmatrix} +\text{ N} \\ +\text{HUMAN} \\ *\text{MASC} \end{bmatrix}$ | $\begin{bmatrix} +\text{ N} \\ -\text{HUMAN} \\ -\text{MASC} \end{bmatrix}$ | $\begin{bmatrix} +\text{ N} \\ -\text{HUMAN} \\ +/-\text{MASC} \end{bmatrix}$ | $\begin{bmatrix} +\text{ N} \\ -\text{HUMAN} \\ \phantom{x} \end{bmatrix}$ |

However, it is far from obvious that this is the right way to
handle these relationships.  In the first place, a sentence
such as I haven't met the teacher yet feels intuitively unspecified
for gender, although whenever an anaphoric pronoun is used it
must be either he or she and not it.  Secondly, he often occurs
as an unmarked form with indefinites, e.g. everyone did his best,
which does not imply that everyone is [+MASC]; everyone did his or
her best sounds extremely pedantic and everyone did their best
is often stigmatized as substandard, but the three sentences
seem to be variants.  Thirdly, there is the problem of it as an
anaphoric pronoun for [+ANIMATE] [-HUMAN] nouns.  As we have seen
above many of these (perhaps all of them) can be specified for
gender but they need not be.  Perhaps we need a feature [+/-GENDER]
such that [+GENDER] requires specification for the feature [MASC],
whereas [-GENDER] nouns would not require such specification and
and be anaphorically replaced by it.  This, however, will not help
with nouns such as neighbor.  Alternatively, we might have a
feature [+/-FEMININE] in addition to the feature [+/-MASC] so
that it would replace a noun which was negatively specified for
both features.  However, it seems ad hoc and counter-intuitive

to make nouns such as neighbor and teacher hermaphroditic with
a positive specification for both features.  In the absence of
convincing evidence as to the correct choice we have decided
to treat inherent features like rule features and have eliminated
specification (4) above.  This means that items such as horse
must either be classed with neighbor or with fruitfly and
the latter choice seems preferable.  Finally, it is possible
that selection of gender for items such as neighbor is fundamen-
tally semantic (as McCawley (1966) has argued) and thus some of
the above discussion may relate to a pseudo-problem, but within
the scope of the present grammar we have no alternative to a
syntactic solution.

As was stated above, optional contextual features are
left unspecified whereas optional rule features and optional
inherent features have "obligatory specification", indicating
that the feature must be positively or negatively specified
before the lexical item is inserted into a tree.  This means that
the entry for a lexical item will show the rule features and in-
herent features which are relevant to that item but will show
only those contextual features which are positively or negatively
specified, indicating that their presence or absence is obligatory.
To know which contextual features are optionally allowed one must
know the set of possible contextual features and consequently
which features have been omitted from the feature index.  For
example, verbs and nouns which can take a neutral case may
take a sentential complement, either dominated directly by
neutral case or dominated by the fact (see NOM), unless such
features are negatively specified.  Accordingly, destroy,
which does not allow a sentential complement of either kind,
must be marked [-FACT] and [-S]; regret, which allows only
factive sentential complements, must be marked [-S]; and expect,
which allows only non-factive sentential complements, must be
marked [-FACT].  This may appear confusing at first sight since
factive verbs are identified by the specification [-S] and non-
factive verbs by the specification [-FACT].  The absence of
both negative specifications in a verb which takes a neutral
case would mean that the verb takes both factive and non-
factive sentential complements, but in the present lexicon such
verbs have two entries.[1]

Deep structure articles, pronouns and prepositions which
will later be given their appropriate phonological representation
in the Second Lexical Lookup are listed in the first lexicon under
identifying labels in lower case letters between quotation marks,
e.g. "the", "much/many".  These labels are identificatory only

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[1]  The multiplication of entries is not altogether unmotivated
here since there is clearly a difference between remember
in He remembered telling her, which is factive, and remember
in He remembered to tell her, which is non-factive.

since such items have no phonological representation until
the Second Lexical Lookup.

5.  Redundancy Rules

Redundancy rules help to reduce the number of feature
specifications in a complex symbol whenever predictable features
can be added by a general rule.  The usual form of such rules is
outlined in the GENERAL INTRODUCTION-FORMAL ORIENTATION (see
under "Lexical Rules").  In addition we allow complex symbols on
the left in redundancy rules and such complex symbols may include a
feature with "obligatory specification" ($[*F_1]$).  For example,

$$\begin{bmatrix} + \text{ N} \\ * \text{ HUMAN} \end{bmatrix} \quad \Rightarrow \quad [+\text{ANIMATE}]$$

since any noun that is specified for the feature HUMAN must be
ANIMATE.[1]  It is important to note that this rule is equivalent
to the three rules:

$$\begin{bmatrix} + \text{ N} \\ + \text{ HUMAN} \end{bmatrix} \quad \Rightarrow \quad [+\text{ANIMATE}]$$

$$\begin{bmatrix} + \text{ N} \\ - \text{ HUMAN} \end{bmatrix} \quad \Rightarrow \quad [+\text{ANIMATE}]$$

$$\begin{bmatrix} + \text{ N} \\ * \text{ HUMAN} \end{bmatrix} \quad \Rightarrow \quad [+\text{ANIMATE}]$$

since the redundancy rules apply before the insertion of a lexical
item in a tree and thus there may be items where the value "*"
has not yet been expanded.  Examples for the above feature are
man [+HUMAN], horse [-HUMAN], and champion [*HUMAN].

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(1)  It is important to note, as Friedman and Bredt point out
     (1968:10), that rules of the kind used by Chomsky (1965:82),
     e.g. [+ANIMATE]/[+/-HUMAN], are not redundancy rules but
     generative rules, since the feature HUMAN is certainly not
     optional for all animates (if any).

Fillmore (1967a:34) suggests redundancy rules of the following
kind: (1)

$$\begin{bmatrix} + \text{ N} \\ + \text{ AGT} \end{bmatrix} \quad \Rightarrow \quad [+ \text{ ANIMATE}]$$

$$\begin{bmatrix} + \text{ N} \\ + \text{ DAT} \end{bmatrix} \quad \Rightarrow \quad [+ \text{ ANIMATE}]$$

However, in the present grammar it would be impossible to interpret
such rules since syntactic cases are not assigned to nouns and even
if they were this would not have happened by the time the redun-
dancy rules apply.  On the other hand, it would be useful to
capture the generalization that agents and datives are usually
[+ ANIMATE] and also that locatives and instruments are usually
[- ANIMATE].  It is unfortunately not true that this is always
the case:      $\begin{bmatrix} + \text{ AGT} \\ - \text{ ANIMATE} \end{bmatrix}$

    (4)  (a)  The wind opened the door.

                     $\begin{bmatrix} + \text{ DAT} \\ - \text{ ANIMATE} \end{bmatrix}$

        (b)  John robbed a bank.

                 $\begin{bmatrix} + \text{ LOC} \\ + \text{ ANIMATE(?)} \end{bmatrix}$ $\begin{bmatrix} + \text{ INS} \\ + \text{ ANIMATE(?)} \end{bmatrix}$

        (c)  He hit me in the face with his fist.

                    $\begin{bmatrix} + \text{ LOC} \\ + \text{ ANIMATE} \end{bmatrix}$

        (d)  There are thieves in the crowd.

It is clear that the problem is not simply one of the character
of the cases but also involves the little explored nature of inherent
features such as [ANIMATE].  In the above examples, it may be that
natural forces such as <u>wind</u> which are the principal class of
[-ANIMATE] nouns that can appear as agents are in fact a subclass
of [+ ANIMATE] nouns.  Similarly, many [-ANIMATE] nouns such as
<u>bank</u> which have human associations can often take the genitive and
otherwise behave in some sense like [+ANIMATE] nouns.  On the other
hand, <u>fist</u> and <u>face</u>, though parts of an animate being, share few
selectional restrictions with nouns such as <u>man</u>, <u>horse</u> and <u>fruitfly</u>,
and thus they are [-ANIMATE].  Perhaps the feature we need should not

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(1)  This is the form of the rules in the pre-publication version.
     In the published version Fillmore gives a different formulation
     which is closer to our rules given below.

be labelled ANIMATE but something like AUTONOMOUS. This might
exclude collectives such as <u>crowd</u>. In any event, the question
of redundancy rules on cases is complicated by the fact that we
are working with such ill-defined features.

It was also thought at one time that locatives and instru-
ments might be predictably [-ABSTRACT]. However, this turns out
to be wrong:

$$\begin{bmatrix} + \text{ LOC} \\ + \text{ ABSTRACT} \end{bmatrix}$$

   (5)  (a)  He found the idea in one of Chomsky's footnotes.

$$\begin{bmatrix} + \text{ INS} \\ + \text{ ABSTRACT} \end{bmatrix}$$

       (b)  He destroyed my argument with several counter-
           examples.

There is, nevertheless, an interesting constraint on verbs such
as <u>find</u> which can take a [+ABSTRACT] locative only with a [+AB-
STRACT] object:

$$\begin{bmatrix} + \text{ NEUT} \\ - \text{ ABSTRACT} \end{bmatrix} \quad \begin{bmatrix} + \text{ LOC} \\ - \text{ ABSTRACT} \end{bmatrix}$$

     (c)  He found the pencil in a drawer.

$$\begin{bmatrix} + \text{ NEUT} \\ + \text{ ABSTRACT} \end{bmatrix} \quad \begin{bmatrix} + \text{ LOC} \\ - \text{ ABSTRACT} \end{bmatrix}$$

     (d)  *He found the idea in a drawer.

$$\begin{bmatrix} + \text{ NEUT} \\ - \text{ ABSTRACT} \end{bmatrix} \quad \begin{bmatrix} + \text{ LOC} \\ + \text{ ABSTRACT} \end{bmatrix}$$

     (e)  *He found the pencil in a footnote.

Since many lexical items in locative position can be either
[+ABSTRACT] or [-ABSTRACT], the concreteness of the object will
determine the concreteness of the locative:

$$\begin{bmatrix} + \text{ LOC} \\ - \text{ ABSTRACT} \end{bmatrix}$$

     (f)  He found the pencil in a book.

$$\begin{bmatrix} + \text{ LOC} \\ + \text{ ABSTRACT} \end{bmatrix}$$

     (g)  He found the idea in a book.

Any redundancy rule that would capture this relationship would
presumably also require neutral case to precede locative case in
the insertion of lexical items. At the present stage of uncertainty
as regards the ordering of lexical insertion this is conceivable
and it seems reasonable that the order should not be completely
arbitrary, but it is too early to know what consequences this
would have.

An alternative proposal has been put forward by Matthews (1968) where dative case "refers to a person or thing which is affected in some way by the action of the verb", whereas in the neutral case (absolutive case, in Matthews's terminology) the referent is acted upon by the action of the verb but "not affected by this action". Thus Matthews contrasts

$\quad$ (AGT) $\qquad$ (DAT) $\qquad$ (INS)
(6) (a) The workman broke the window with a hammer.

$\quad$ (AGT) $\qquad$ (NEUT) $\qquad$ (DAT)
(b) The doctor broke the bad news to the child's

$\qquad$ (INS)
$\quad$ parents with a telegram.

Matthews argues that the bad news is not in the dative case because it is not affected by the action of the verb, that is, it "is the same before and after it is broken to the child's parents". Although this captures a distinction between neutral and dative that is not handled in the UESP grammar, the examples are not convincing. In the first place, it seems unlikely that we are dealing with the same verb in he broke the window and he broke the news since the former can occur freely with physical objects of a certain degree of regidity (Fillmore, 1967b:25), but the latter is extremely restricted even with abstract objects:

$$(7) \quad (a) \quad \text{He broke} \left\{ \begin{array}{l} \text{the table} \\ \text{the stick} \\ \text{his leg} \\ \text{a cup} \end{array} \right\}$$

$$(b) \quad \text{He broke} \left\{ \begin{array}{l} \text{the news} \\ \text{the story} \\ \text{*the idea} \\ \text{*a proposal} \\ \text{*his thoughts} \end{array} \right\}$$

Secondly, there is no apparent parallelism between the examples of the dative case in

$\qquad\qquad\qquad$ (DAT)
(8) (a) He broke the window.

$\qquad\qquad\qquad\qquad\qquad$ (DAT)
(b) He broke the news to the child's parents.

nor can they be switched.

$\quad$ (c) *He broke the child's parents.
$\quad$ (d) *He broke something to the window.

Thirdly, Matthews makes use of pseudo-cleft constructions to distinguish between neutral case and dative case:

(9) (a) What the workman did to the window was break it.

(b) What the doctor did with the bad news was break it to the child's parents.

However, pseudo-cleft constructions with appended prepositional phrases can be so freely generated that it is dangerous to base decisions of this kind on them:

(c) What John did $\begin{Bmatrix} \text{to} \\ \text{about} \\ \text{with} \end{Bmatrix}$ the window was $\begin{Bmatrix} \text{break it} \\ \text{oil the hinges} \\ \text{replace the glass} \end{Bmatrix}$

(d) What John did $\begin{Bmatrix} \text{about} \\ \text{with} \end{Bmatrix}$ the bad news was $\begin{Bmatrix} \text{keep quiet} \\ \text{tell his father} \\ \text{about it} \\ \text{suppress it} \\ \text{telephone his mother} \end{Bmatrix}$

Accordingly, we have not adopted Matthew's use of dative though semantically, at least, the distinction between an object which is affected by the action of the verb and one which is not is clearly important. However, we do not feel that it can best be captured in the present kind of case-grammar by a contrast between neutral and dative.

There are a few residual problems with apparently [-ANIMATE] datives. For example, in the following sentences

(10) (a) John gave the house a coat of paint.
(b) He attributed his success to good looks.
(c) This evidence lends credence to his argument.

House, good looks and argument all seem possible datives. However, in (10a) house is clearly not a dative in the same sense as Peter in

(d) John gave Peter his old car.
(e) John gave his old car to Peter.
(f) John gave Peter his old car and then took it back again.

since there are no equivalent examples with <u>house</u> to (10e,f)

> (g) *I gave a coat of paint to the house.[1]
> (h) *I gave the house a coat of paint and then took
>         it back again.

In fact, <u>house</u> must be a locative with obligatory objectivalization:

> I gave a coat of paint on the house ⇒ I gave the house a
>     coat of paint.

Supporting evidence that this is the right analysis comes from
the sentences

> (i)  I put a coat of paint on the house.
> (j) *I put the house a coat of paint.
> (k)  I gave the house a coat of paint and then took
>         it off again.

This will, of course, be a different lexical item from <u>give</u> in
(10d-f).  The other two cases are harder to account for without
adding to the number of cases or making some apparently ad hoc
changes to the rules.  In the present analysis they remain as datives.

In Test Grammar II the following rules were proposed:

$$\begin{bmatrix} + \text{ N} \\ + \text{ ANIMATE} \end{bmatrix} \implies \begin{bmatrix} - \text{ INS NOUN} \\ - \text{ LOC NOUN} \end{bmatrix}$$

$$\begin{bmatrix} + \text{ N} \\ - \text{ ANIMATE} \end{bmatrix} \implies \begin{bmatrix} - \text{ AGT NOUN} \\ - \text{ DAT NOUN} \end{bmatrix}$$

where INS NOUN, LOC NOUN, AGT NOUN, DAT NOUN were abbreviations of
contextual features which amounted to "able to appear as head noun
in an INS (LOC, AGT, DAT respectively) case frame."  Although, as
we have seen, these rules are not completely accurate we have
decided to retain them until they can be replaced by rules which
better capture the generality which lies behind them.

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(1) The usual restriction with [-ANIMATE] nouns is exactly the
    opposite, <u>I brought the water to the table</u>/<u>*I brought the table
    the water</u>, though there are some problems as to whether <u>table</u>
    is a dative or a directional locative.

Another suggestion which Fillmore has made regarding the intrinsic content of cases is his claim that only verbs which have an agent in the sentence are non-stative:

> The transformation which accounts for the 'true imperatives' can apply only to a sentence containing an A[gent]; and the occurrence of B[enefactive] expressions, progressive aspect, etc., are themselves dependent on the presence of A[gent]. No special features indicating 'stativity' need to be added to verbs, because only those verbs which occur in P[propositions] containing an A[gent] will show up in those sentences anyway.
>
> [Fillmore, 1967a:42]

This is an important claim since it would, if correct, support the view that deep cases reflect semantic relations in an economical and non-ad hoc manner. However, the statement as it stands is clearly inadequate and is contradicted by one of the examples given by Fillmore two pages before it, namely <u>the potatoes are cooking</u>, where there is no agent in the sentence to account for the progressive, unless Fillmore means that there is a deleted agent in this sentence. It turns out that there are two main groups of possible exceptions to Fillmore's claim:

(11) Verbs in the progressive without an animate subject
   (a) The string is breaking.
   (b) The potatoes are cooking.
   (c) This material is losing its sheen.
   (d) The train is arriving.
   (e) The water is filling the barrel.
   (f) The garden is swarming with bees.

(12) Verbs in the progressive with an animate subject which
       is putatively in the dative case
   (a) He is dying.
   (b) John is dreaming.
   (c) I am hoping to hear from them very soon.
   (d) I'm regretting it already.
   (e) She is expecting that there will be a big crowd.
   (f) They are hating it.

Although such examples show that Fillmore's claim cannot be accepted as it stands, it does not prove that there is no correlation between stativity and lack of agent in the sentence since stativity is not merely a matter of tolerance for the progressive aspect. We will consider the examples in (11) first since the absence of an animate subject otherwise coincides with the criteria for stativity:

(13) Imperative
    (a) *Break, string!
    (b) *Cook, potatoes!
    (c) *Lose your sheen, material!
    (d) *Arrive, train!

(14) Do-something
    (a) *What the string did was break.
    (b) *What the potatoes did was cook.
    (c) *What the material did was lose its sheen.
    (d) *What the train did was arrive.

(15) Do-so
    (a) *The string broke and the rope did so, too.
    (b) *The potatoes cooked and the meat did so, too.
    (c) *This material lost its sheen and that material
        did so, too.
    (d) *The train arrived and the bus did so, too.

(16) Suasion
    (a) *I persuaded the string to break.
    (b) *I forced the potatoes to cook.
    (c) *I made the material lose its sheen.
    (d) *I ordered the train to arrive.

(17) Agentive adverbials
    (a) *The string willingly broke.
    (b) *The potatoes cooked carefully.
    (c) *The material deliberately lost its sheen.
    (d) *The train carefully arrived.

(18) In-order-to
    (a) *The string broke in order to open the parcel.
    (b) *The potatoes cooked in order to feed the people.
    (c) *The material lost its sheen in order to be less
        ostentatious.
    (d) *The train arrived in order to disgorge its passengers.

It is clear that by the above criteria the verbs in (11) are non-stative in spite of the fact that they can take the progressive aspect.

Nevertheless, there remains the problem of why the stative verbs in (11), if they are stative, can take the progressive aspect. The confusion arises because BE+ING has more than one use:

(19) (a) Look, the young bird is actually flying. (Now)
     (b) John is flying to London next week. (Future)

(c) John is flying to Europe or Africa these days.
     (Habitual within a limited period.)
(d) John is always flying off somewhere. (Uttered
     as a complaint)

If we look at the examples in (11) we find that it is not simply
a matter of BE+ING:

(20) (a) *The string is breaking tomorrow.
     (b) *The string is breaking these days.
     (c)  The string is always breaking.
     (d) *The potatoes are cooking tomorrow.
     (e) *The potatoes are cooking these days.
     (f) *The potatoes are always cooking.
     (g) *This (piece of) material is losing
             its sheen tomorrow.
     (h) *This (piece of) material is losing its sheen
             these days.
     (i) *This (piece of) material is always losing its sheen.
     (j)  The train is arriving tomorrow.
     (k) *The train is arriving these days.
     (l) *The train is always arriving.

However, note also

     (m) ?This (kind of) material is losing its sheen these
             days.
     (n)  This (kind of) material is always losing its sheen.
     (o)  The train is arriving late these days.
     (p)  The train is always arriving late.

There is, apparently, some relationship between the classes of
verbs and the uses of BE+ING. In connection with such problems
Vendler (1967:97-121) has some interesting observations to make.
As well as distinguishing between "activity" verbs and "state"
verbs, Vendler has two additional categories, "achievement" verbs
and "accomplishment" verbs. Vendler's "activity" verbs, e.g. run,
walk, swim, push, etc., are unambiguously in the category of non-
stative verbs, and his "state" verbs, e.g. know, believe, like,
hate, etc., correspond closely to stative verbs. It is the other
two categories which are especially interesting. Vendler gives
as examples of "accomplishment" verbs [1] paint a picture, build a
house, draw a circle, give a class, play a game of chess, etc.,
in all of which the perfective use of the verbs requires the
completion of a finite task. In other words, if John begins to

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(1) The fact that Vendler gives examples of verb phrases rather
    than verbs is an indication that we are dealing with a fairly
    complex situation.

draw a circle but stops before the task is completed we cannot say
John drew a circle, while with an "activity" verb such as run there
is no such requirement. As examples of "achievement" verbs Vendler
gives recognize, realize, identify, find, win the race, reach the
summit, etc. At first sight, it is not obvious that "achievement"
verbs differ significantly from "accomplishment" verbs but the basis
of the distinction is that "achievement" verbs take place at an instant
of time, whereas "accomplishment" verbs take place over a period of
time. Vendler's example is that if it takes you an hour to write a
letter you can say at any time during that hour I am writing a letter,
but if it takes you three hours to reach the summit you cannot say
at any moment during that period I am reaching the top. Since it
might be argued that the latter remark is possible, it might be
safer to say that it would at least be inappropriate as a reply to
the question What are you doing?

However, perhaps more important that the distinction between
"achievement" and "accomplishment" verbs is the difference of both
of them from "activity" and "state" verbs. Vendler argues that
"activity" and "state" verbs do not require unique or definite
periods of time. By this, Vendler apparently means that "activity"
and "state" verbs do not place definite limits on the duration of
the action or state. For example, he is swimming in the sea and he
knows the answer do not imply a specific termination of the "activity"
of swimming or the "state" of knowing. On the other hand, he is writing
a book and he is winning the race  require that the terminal point has
not been reached; that is, that the book is not yet finished nor the
race over.

If we look back at the examples in (11) we find that (11a)
and (11c) are similar to Vendler's "achievement" verbs and that (11b),
(11d) and (11c) are similar to Vendler's "accomplishment" verbs. If
this identification is correct it might help to explain why such
verbs allow BE+ING when it is used to indicate a process of indefinite
duration. In (11a) the process must end when the string breaks and
in (11c) when the train arrives; in (11b), (11d) and (11e) the time
will come when the potatoes are cooked, the barrel is filled and the
material has lost its sheen. At such a point the process will stop
and it will no longer be appropriate to use BE+ING.

It is possible that there is some better classification of such
verbs than "achievement" and "accomplishment" but Vendler's distinc-
tion at least supports the view that the occurrence of BE+ING with
the verbs in (11) is not in itself sufficient grounds for excluding
them from the category of stative verbs, in view of the overwhelming
evidence from the other criteria that they are in fact stative, and
we accordingly treat them as such. However, this also means that the
occurrence of BE+ING is not always predictable on the basis of stativity.
This seems a small price to pay compared with the advantage of pre-
dicting stativity on the basis of deep case relationships.

The verbs in (11), with one exception, are therefore considered to be [+STATIVE] although such a feature will not be marked in the lexicon since it is totally predictable. The recalcitrant example is (11f). For convenience, we repeat the example:

(11) (f) The garden is swarming with bees.

This is clearly closely related to

(21) Bees are swarming in the garden.

However, there are disagreements as to whether (11f) and (21) are paraphrases. Those who argue that they are not synonymous point to the difference in (22):

(22) (a) The garden is swarming with people.
(b) *?People are swarming in the garden.

Those who reject (22b) claim that swarm in (21) is used in a technical or literal sense, which is inappropriate for people, whereas in (11f) and (22a) it is used in a metaphorical sense. A similar distinction can be seen in

(23) (a) The cat was crawling with lice.
(b) Lice were crawling on the cat.

However, if we consider bees, people and lice as agents in these sentences regardless of whether they occur as surface subjects or not the verbs are predictably [-STATIVE], which is what we want. The difference between (11f) and (21) can then be seen as a difference in topic focus, either involving a slight change in meaning or setting up two different verbs, though the latter view seems unnecessary.

We will now consider the examples in (12), namely, the sentences with an animate subject which is putatively in the dative case although the verb is in the progressive. These examples caused considerable trouble at first because the criteria for dative subjects are the same as those for stative verbs; that is, we wish to say that an animate subject is in the dative case if the verb does not require active voluntary participation on the part of the subject. Thus see and hear take dative subjects in contrast to look and listen, which have agentive subjects. However, the presence of the progressive in the sentences of (12) raised doubts about the validity of the criteria involved and it was not at first clear whether the notion of passive, involuntary participation outweighed the use of the progressive, or vice versa. The discussion of

the use of BE+ING in (11), however, shows that there may be an explanation for the apparent discrepancy between the two sets of criteria, though the situation is considerably more complicated than with the inanimate subjects.

In the first place, it is not always clear to what extent mental states or activities are under voluntary control. For example,

(24)  (a)  I forget his name.
      (b)  *I am forgetting his name.
      (c)  *He persuaded me to forget what had happened.
      (d)  He told me to forget what had happened.
      (e)  Forget it!
      (f)  I tried to forget it.
      (g)  ?He deliberately forgot to tell her.

In (24a-c) it is clear that the sense of forget is something that is not under voluntary control, whereas in (24d-g) it somehow is.  In (24d-f) forget is roughly equivalent to ignore and in (24g), if the sentence is acceptable, it is closer to neglect.  Thus, in the sentences of (24) it is not so much the basic meaning of forget which predicts the degree of voluntary control, it is rather the use of the verb which predicts the meaning.

In the second place, Vendler distinguishes "achievements that start activities from achievements that initiate a state" (1967:112).  His illustration of the latter is when someone who is trying to find the solution to a mathematical problem suddenly shouts out Now I know it!  Another example of know used in an achievement sense might be

(25)  He told me to know the answer by tomorrow.

It is clear that know in (25) is roughly equivalent to learn and it is interesting that in other languages this distinction may be expressed by an aspectual difference rather than by lexical suppletion as is usually the case in English.  In Spanish, for example, lo sabía ayer means 'I knew it yesterday', whereas lo supe ayer means 'I found out about it yesterday'.

Accordingly, although it has not been possible to work out the full implications of the decision, we are assuming that stativity is predictable from the absence of an agent in the sentence and that there are convincing explanations for

the apparent exceptions.  One of these explanations is that
verbs which normally take dative subjects may occasionally
be found with agentive subjects with a corresponding effect
on the semantic interpretation of the verb.  Thus, know is
listed in the lexicon as taking a dative subject although in
(25) it takes an agent.  This is similar to the manner in which
the count/non-count distinction may be overridden in a sentence.
For example, although butter is marked [-COUNT] it appears in
the following examples as a count noun:

> (26)  (a)  This is a very fine butter.
>        (b)  Some butters are more expensive than others.

The fact that not everyone will accept the sentences in (26)
is not important.  The point is that if they are acceptable
they must be interpreted in a count sense.  Similarly, (25)
may not be acceptable to everyone but if it is acceptable it
requires an agentive subject for know. Consequently, we consider
the examples in (12) to have dative subjects.

   Thus stative verbs such as know, believe, understand
have no agent in the case-frame and take the dative as subject.
Other verbs such as annoy, amuse, scare, frighten need two
entries, one with an agent where the action of the verb is done
"deliberately", the other without an agent where the action of
the verb "happens" without the deliberate intention of an agent.
The first is non-stative and the second stative:

                  (AGT)
> (27)  (a)  John (deliberately) frightened Mary (by bursting
>                a balloon behind her back).
>                  (AGT)
>        (b)  John was frightening Mary (by bursting balloons
>                behind her back).
>                  (INS)
>        (c)  John (accidentally) frightened Mary (by opening
>                the door suddenly).
>                  (INS)
>        (d)  The noise frightened Mary.
>                  (INS)
>        (e)  *John was (accidentally) frightening Mary.
>                  (INS)
>        (f)  *The  noise was frightening Mary. (1)

----

(1)  This sentence is, of course, perfectly grammatical in the sense
     "Mary was growing more and more frightened because of the noise"
     but it is ungrammatical if taken as parallel to "was frightening"
     in (27b).  This is another example of the complex relationship
     between BE-ING and stativity.

## 6. Problems with Cases

As mentioned above there are six cases in the present grammar but it is clear that more will be needed since there are many sentences which cannot be generated by the grammar in its present form. The number of cases that may ultimately be required is uncertain for two reasons. The first is the doubt as to the status of the category adverb and the relationships of such a putative category both inside and outside of the proposition. The second reason for uncertainty is that the addition of one case may have implications for the adoption or exclusion of another. In the light of such doubts the following discussion is purely exploratory.

Among the possible additional cases that have been suggested are BEN(efactive), COM(itative), DEG(ree), MAN(ner), MEANS, REF(erential), RES(ultative), SOU(rce) and TIME. For example,

(28)  (a)  I built a house <u>for father</u>
                                    (BEN) above "for father"

(b)  He brought a friend <u>with him</u>.  (COM)

(c)  He liked it <u>extremely</u>.  (DEG)

(d)  The chancellor spoke <u>threateningly</u>.  (MAN)

(e)  He drained the water from the tank with a hose <u>by sucking on it like a straw</u>.  (MEANS)

(f)  She wouldn't tell us anything <u>about the accident</u>.  (REF)

(g)  He broke the chocolate bar <u>into three pieces</u>.  (RES)

(h)  My mother taught me Russian <u>from a book</u>.  (SOU)

(i)  The concert lasted <u>for three hours</u>.  (TIME)

For each of these cases, however, there is considerable uncertainty as to its scope and definition. As we have seen above, there are problems even with dative, agent, instrument and locative, which are far from intuitively simple categories, but the problems are multiplied with most of the cases illustrated in (28). For instance, the Benefactive in (28a) can have at least three different interpretations:

I built a house for father.

(i) He'll get the rent from it each month. (for the benefit of)

(ii) His lumbago has been bothering him. (in place of)

(iii) We'll move him in on the first
of the month. (intended/
reserved for)

Moreover, (i) and (iii) might well be datives since the same interpretations would apply to I built father a house. This would simply mean that build had an idiosyncratic dative preposition since the sentence I built a house for myself could not have this interpretation but only those of (i) and (iii). In the absence of a clearer notion of Benefactive either inside or outside the proposition we have chosen to exclude it from the propositional frame and treat examples (i) and (iii) above as datives.

A similar argument regarding the reflexive applies to (28b) where the ungrammaticality of *he brought it with himself shows that the Comitative is also outside of the proposition. Moreover, there seem to be no verbs which would either obligatorily require or exclude such a case as a contextual feature[1] and thus no justification for including it within the frame.

The situation is quite different with regard to Manner and Degree. Although there are no verbs which require such cases [2] there are many verbs which exclude them:

(29) John killed him
He died
I heard a noise
He keeps it in his drawer
\} \{ *completely
*utterly
*slightly
*moderately \}

(30) He knows the answer
She resides in Sacramento
John is intelligent
The room is empty
\} \{ *carefully
*easily
*slowly
*freshly \}

---

(1) The situation is complicated by the fact that with him in he brought it with him is pleonastic since the sense of with is contained in bring.

(2) This is an overstatement because of examples such as The guards treated the prisoners badly/*The guards treated the prisoners, but it is not clear how many verbs are like treat in this respect.

It seems likely that Manner and Degree should be included in the propositional frame but lack of an analysis of adverbs outside of the proposition has so far prevented us from incorporating them.

Of the other cases illustrated in (28) Time certainly and possibly Resultative are closely related to adverbials, while Means is often difficult to distinguish from instrumental or a third possibility which might be called Method. Although we have investigated some of the possibilities we have not found convincing arguments for the exclusion or inclusion of these cases and we shall not discuss them further here. The remaining two cases illustrated in (28) raise interesting problems. The inclusion of Source as a case would affect the character of the locative case. For example, a verb such as drain may objectivalize the locative case or subjectivalize the neutral case:

```
            (AGT)         (NEUT)        (LOC)
(31)  (a)   He drained the water from the tank.
      (b)   He drained the tank.
      (c)   The water drained from the tank.
```

However, there is also the possibility of an additional preposi-tional phrase which might be considered a second locative:

```
      (d)   He drained the water from the tank into the
                barrel.
      (e)   The water drained from the tank into the barrel.
```

However, it is not possible to objectivalize this second locative:

```
      (f)   *He drained the barrel from the tank.
```

One solution would be to consider from the tank as Source and into the barrel as the sole locative. One disadvantage of this is that it loses the parallel with

```
      (g)   The water in the tank drained into the barrel.
```

which seems much closer to (31e) than

```
      (h)   The water from the tank drained into the barrel.
```

On the other hand, we could allow two locatives with [+DIREC-TIONAL] verbs, one [+TO], the other [-TO]. This would help with all transitive verbs that are "motional" in Gruber's sense:

```
(32)  (a)   He brought his old car from England to the United
                States.
      (b)   The Martians have sent a rocket from their planet
                to the earth.
```

It would also help with the distinction between locative and dative in

> (c) He sent a letter from New York to London and
>       it got there in two days.
> (d) He sent a letter from New York to his brother
>       (in London) and it got there in two days.
> (e) He sent his brother a letter from New York.
> (f) *He sent London a letter from New York.

The last sentence would be unstarred if London is an abbreviation for our branch in London or some other entity with human associations, but then it could properly be treated as a dative. From such examples it is not clear that there are grounds for setting up a case such as Source. There are, however, examples of a quite different sort, to which we now turn.

It is tempting to look to deep cases for the expression of converse relations. For example, if John bought a car from Peter implies Peter sold a car to John and vice versa, and similarly if John borrowed ten dollars from Bill implies Bill lent ten dollars to John and vice versa, one way to express these paraphrase relations would be if John, Peter and Bill were in the same case in each of the pairs of sentences:

(33) (a)    (AGT)     (NEUT)  (DAT)
          Peter sold a car to John.

    (b)    (DAT)     (NEUT)    (AGT)
          John bought a car from Peter.

    (c)    (AGT)    (NEUT)    (DAT)
          Bill lent ten dollars to John.

    (d)    (DAT)    (NEUT)     (AGT)
          John borrowed ten dollars from Bill.

In the first place, it is important to note that the verbs buy and borrow are not [+STATIVE] and this would contradict the claim that only verbs with agentive subjects are [-STATIVE]. Moreover, if it were not for the converse relations there would seem no good syntactic reason for considering the subjects of sentences (33b) and (33d) as other than agents. In addition, the number of lexical items which have strict converse relations of this kind is fairly small and hardly justifies the inclusion of such a principle in the grammar. On the other hand, if we do not adopt an analysis of this kind we are left without a suitable case for from Peter in (33b) and from Bill in (33d). This could be Source, if such a case were admitted into the proposition. At the moment, we are rejecting the analysis which shows the converse relations and we are also not yet clear enough about the nature of the possible case Source to include it.

Sentence (28f), which illustrates a possible Referential case, also raises other interesting questions.  For convenience, we repeat the example:

(REF)

(28)  (f)  She wouldn't tell us anything <u>about the accident</u>.

In the first place, either the indefinite noun or the prepositional phrase can be omitted but not both:

(34)  (a)  She wouldn't tell us anything.
     (b)  She wouldn't tell us about the accident.
     (c)  *She wouldn't tell us.  (Only possible as a response to a question.)

However, the indefinite and the prepositional phrase could also appear alone:

(d)  Anything about the accident would interest them.

or with the other indefinites

(e)  Nothing about the accident appeared in the paper.
(f)  Something about the accident is bound to leak out.

and the prepositional phrase cannot appear with the verb if the object is a definite pronoun:

(g)  *She wouldn't tell it to us about the accident.

Thus only example (34b) suggests that the prepositional phrase is a case on the verb; the other examples make it appear to be a case on the indefinite noun.  However, we have no clear notion of the specific constraints that the dummy noun might have, though it seems that there are some.  To take another set of examples:

(35)  (a)  I read something by Chomsky.
     (b)  ?I ate something by Chomsky.
     (c)  Something by Chomsky was on the table.
     (d)  *Something to Chomsky arrived yesterday. (??)
     (e)  *Something into the city arrived yesterday.
     (f)  Something from Chomsky arrived yesterday.
     (g)  Something on the table must have caught her eye.

These could perhaps be analyzed as reduced relative clauses, but then the problem is simply pushed one step back to that of the occurrence of prepositional phrases in the predicate of a copular sentence, which we have regarded elsewhere as cases on a predicate noun, bringing the problem back full circle.

The problems with the configuration of cases in the proposition would be greatly reduced if we adopted a proposal put forward by Matthews (1968). Matthews suggested that instead of having the phrase structure component assign cases to the several noun phrases introduced in the expansion of the proposition, the proposition could be expanded into a verb followed by any number of phrases (up to a certain number). Then the cases would be assigned to the phrases by the particular choice of a verb from the lexicon, which would be marked for the number of phrases that may appear with it and the cases to be assigned to each of them. This suggestion is attractive in many ways and should be further explored but at the moment we retain a Fillmore-type base with the cases assigned by the phrase structure component.

A special problem has arisen with the extension of case grammar to the structure of the NP, having to do with apparent "inherent cases" of certain nouns.

In testing an early sample lexicon on Friedman's system, it was noted at various stages that finding nouns of given types (e.g. animate nouns, instrument nouns) that could take a wide range of cases was sometimes difficult. The easiest cases are deverbal abstract nouns such as shooting, destruction, etc., which generally take the same cases as the corresponding verb, although instrument seems to be generally excluded from noun complements. Other abstract nouns with a variety of cases are also fairly easy to find (the sort for which Lakoff et al posit an underlying verb, e.g. idea, novel, portrait). Animate nouns which take agent are much harder to find than those which take other cases; and this would seem readily explainable by the fact that most animate nouns which take cases at all are themselves "agent nouns". Thus owner, donor, and guide seem to be agent nouns derived from corresponding verbs (Latin in one case), and accordingly take all the cases of the corresponding verbs except agent. Similarly for the non-deverbal king, father, ambassador, nurse. The few found so far that allow agent seem themselves to be datives, i.e. captive, victim, employee, delegate. But emissary seems to allow both a dative and an agent.

The same problem appears from a different angle when we note that author takes book as an object, while book takes author as an agent. And triples such as employment, employer, employee; lease, lessor, lessee clearly have a deverbal member, an agent member, and a dative member. The problem thus boils down to the fact that many of what we have thus far regarded as head nouns are really case-marked themselves. One approach to a solution, would be to have headless NP's with rules for inserting one of the case-marked nouns into head position. This would obviously require some pretty complex mechanisms. Perhaps something more moderate could be worked out with redundancy rules. In any case, the area needs and deserves much study. In our present grammar,

no representation of these apparent "inherent cases" is given; it is simply taken (incorrectly) as an accidental fact that <u>author</u> takes an object, <u>book</u> an agent, etc.

It is clear from the foregoing that many problems remain to be solved in specifying lexical entries and the sample lexicon which follows makes no claims to do more than illustrate some of the information which a more developed lexicon ought to include, but as the other areas of the grammar are more fully explored we hope to expand the lexicon and make it more representative than we have been able to do so far.

July 1969

B.  Sample First Lexicon

Redundancy Rules

$$\begin{bmatrix} + \text{V} \\ \begin{cases} + \text{NEUT} \\ + \text{DAT} \\ + \text{LOC} \\ + \text{INS} \\ + \text{AGT} \end{cases} \end{bmatrix} \Rightarrow \qquad [-\text{ESS}]$$

$$\begin{bmatrix} + \text{V} \\ + \text{ESS} \end{bmatrix} \Rightarrow \qquad [+\text{NEUT} -\text{DAT} -\text{LOC} -\text{INS} -\text{AGT}]$$

$$\begin{bmatrix} + \text{V} \\ - \text{S} \end{bmatrix} \Rightarrow \qquad [*\text{EXTRA}]$$

$$\begin{bmatrix} + \text{N} \\ * \text{HUMAN} \end{bmatrix} \Rightarrow \qquad [+\text{ANIMATE}]$$

$$\begin{bmatrix} + \text{N} \\ + \text{ABSTRACT} \end{bmatrix} \Rightarrow \qquad \begin{bmatrix} -\text{ANIMATE} \\ -\text{HUMAN} \end{bmatrix}$$

$$\begin{bmatrix} + \text{N} \\ + \text{ANIMATE} \end{bmatrix} \Rightarrow \qquad \begin{bmatrix} -\text{INS NOUN} \\ -\text{LOC NOUN} \end{bmatrix}$$

$$\begin{bmatrix} + \text{N} \\ - \text{ANIMATE} \end{bmatrix} \Rightarrow \qquad \begin{bmatrix} -\text{AGT NOUN} \\ -\text{DAT NOUN} \end{bmatrix}$$

$$\begin{bmatrix} + \text{ART} \\ + \text{DEF} \end{bmatrix} \Rightarrow \qquad [-\text{ATTACH}]$$

$$\begin{bmatrix} + \text{ART} \\ + \text{DEM} \end{bmatrix} \Rightarrow \qquad \begin{bmatrix} +\text{N-DEL} \\ -\text{WH} \end{bmatrix}$$

$$
\begin{bmatrix} + \text{ART} \\ - \text{DEF} \\ + \text{DEM} \end{bmatrix} \quad \Rightarrow \quad \begin{bmatrix} +\text{ATTACH} \\ -\text{N-DEL} \end{bmatrix}
$$

$$
\begin{bmatrix} + \text{ART} \\ - \text{DEF} \end{bmatrix} \quad \Rightarrow \quad [-\text{GEN}]
$$

$$
\begin{bmatrix} + \text{ART} \\ + \text{DEM} \end{bmatrix} \quad \Rightarrow \quad [-\text{GEN}]
$$

$$
\begin{bmatrix} + \text{ART} \\ [\underline{\quad\quad}] \end{bmatrix} \quad \Rightarrow \quad \begin{bmatrix} -\text{PRO} \\ -\text{INDET} \\ -\text{NEG} \\ -\text{PL} \end{bmatrix}
$$

"a/sm"

+ ART
- DEF
- DEM
* SPEC
- ATTACH
* COUNT

ADVOCATE

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- WH-S
* PASS
* GER

ADMIT[1]

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
+ RAISE-TO-OBJ

ACCUSE

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ GER
+ DAT → OBJ
+ PREP NEUT of

ADMIT[2]

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- S
* PASS

ACKNOWLEDGE[1]

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ

AFTER

+ PREP
+ TEMPORAL
- AFFECT

ACKNOWLEDGE[2]

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- S
* PASS

AIM

+ V
- ADJ
+ [____ -NEUT -DAT +LOC +AGT]
* PASS
* INS → OBJ

ALL

+ QUANT
+ DIST
+ N-DEL
- ATTACH
- [[+DEF] ____ ]
- [[+SPEC] ____ ]
- INTEGER
+ SHIFT


ALWAYS

+ ADV
+ TEMPORAL
- DEF
- SPEC


AMBASSADOR

+ N
+ [____ -NEUT -DAT -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN


AMUSE[a]

+ V
- ADJ
+ [____ -NEUT +DAT -LOC +INS -AGT]
* PASS
* EMOT


AMUSE[b]

+ V
- ADJ
+ [____ -NEUT +DAT -LOC +AGT]
* PASS


AMUSED

+ V
+ ADJ
+ [____ -NEUT +DAT -LOC -AGT]
+ PREP INS at


AMUSEMENT

+ N
+ [____ -NEUT -LOC -AGT]
+ COMMON
- COUNT
+ ABSTRACT
+ PREP INS at


"and"

+ CONJ
+ AND


ANGRY

+ V
+ ADJ
+ [____ -NEUT +DAT -LOC +INS -AGT]
+ DAT → SUBJ
+ PREP INS at


ANNOUNCE

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- S
* PASS


ANNOUNCEMENT

+ N
+ [____ -LOC -INS]
+ COMMON
+ COUNT
+ ABSTRACT

967

ANNOY[a]

+ V
- ADJ
+ [____ -NEUT +DAT -LOC +INS -AGT]
* PASS
* EMOT


ANNOY[b]

+ V
- ADJ
+ [____ -NEUT +DAT -LOC +AGT]
* PASS


ANNOYANCE

+ N
+ [____ -NEUT -LOC -AGT]
+ COMMON
- COUNT
+ ABSTRACT
+ PREP INS at


ANNOYED

+ V
+ ADJ
+ [____ -NEUT +DAT -LOC -AGT]
+ PREP INS at


ANSWER

+ V
- ADJ
+ [____ -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ [[+ABSTRACT] OBJ]


ANSWER

+ N
+ [____ -LOC -INS]
- FACT
- IMPER
- WH-S
+ COMMON
+ COUNT
+ ABSTRACT
+ [[+ ABSTRACT] OBJ]
+ PREP NEUT about


ANTICIPATE

+ V
- ADJ
+ [____ +NEUT -DAT -LOC
          -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
* GER
+ STAT-REDUCT
* RAISE-TO-OBJ
+ [[+ABSTRACT] OBJ]


ANXIOUS[1]

+ V
+ ADJ
+ [____ +DAT -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
+ EMOT
+ EQUI-NP-DEL


ANXIOUS[2]

+ V
+ ADJ
+ [____ +DAT -LOC -INS -AGT]
- S
+ PREP NEUT about

ANY

+ QUANT
+ DIST
+ ATTACH
+ N-DEL
- [[+DEF] ____ ]
- [[+SPEC] ____ ]
- INTEGER
- SHIFT


APPEAR

+ V
- ADJ
+ [____ +NEUT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* RAISE-SUBJ


APPRECIATE

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- S
* PASS
+ [[+ABSTRACT] OBJ]


APPRECIATION

+ N
+ [____ -LOC -INS -AGT]
- S
+ COMMON
- COUNT
+ ABSTRACT


ARM

+ N
+ [____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE


ARRIVE

+ V
- ADJ
+ [____ +NEUT -DAT -INS -AGT]
- FACT
- S


ASK$^1$

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
* PASS
+ EQUI-NP-DEL
* DAT → OBJ
+ PREP DAT of


ASK$^2$

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- S
* PASS
+ DAT → OBJ
+ PREP NEUT for

**ASSUME**

+ V
- ADJ
+ [____ +NEUT -DAT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ


**ASSUMPTION**

+ N
+ [____ -DAT -LOC -INS]
- FACT
- IMPER
- WH-S
+ COMMON
+ COUNT
+ ABSTRACT
+ [[+ABSTRACT] OBJ]


**AT**

+ PREP
+ LOC
- DIR


**AUTHOR**

+ N
+ [____ -DAT -LOC -INS -AGT]
- FACT
- S
+ COMMON
+ COUNT
+ HUMAN


**AVAILABLE**

+ V
+ ADJ
+ [____ +NEUT -INS -AGT]
- FACT
- S


**AVOID**

+ V
- ADJ
+ [____ +NEUT -DAT -LOC
             -INS +AGT]
- FACT
- IMPER
- WH-S
+ AGT-IDENT
* PASS
+ GER
+ EQUI-NP-DEL
+ AFFECT


**AWARE**

+ V
+ ADJ
+ [____ +NEUT +DAT -LOC
                -INS -AGT]
- S


**AWARENESS**

+ N
+ [____ -LOC -INS -AGT]
- S
+ COMMON
- COUNT
+ ABSTRACT

## "be"

+ V
- ADJ
+ [____ +ESS]
- FACT
- S


## BEARER

+ N
+ [____ -INS -AGT]
- FACT
- S
+ COMMON
+ COUNT
+ HUMAN
* MASC


## BEFORE

+ PREP
+ TEMPORAL
+ AFFECT


## BEGIN¹

+ V
- ADJ
+ [____ +NEUT -DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* GER
+ RAISE-TO-SUBJ


## BEGIN²

+ V
- ADJ
+ [____ +NEUT -DAT -INS +AGT]
- FACT
- S
* PASS


## BEGINNING

+ N
+ [____ -DAT -LOC -INS]
- FACT
- S
+ COMMON
+ COUNT
+ ABSTRACT


## BELIEF

+ N
+ [____ -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
+ COMMON
+ COUNT
+ ABSTRACT
+ PREP NEUT in


## BELIEVE

+ V
- ADJ
+ [____ +NEUT +DAT -LOC
                    -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ


## BETWEEN

+ PREP
+ LOC
- DIR

BIG

+ V
+ ADJ
+ [_____ +NEUT -DAT -LOC -INS -AGT]
- FACT
- S


BODY

+ N
+ PRO
+ ATTACH
+ HUMAN
* MASC
+ COUNT
- PLURAL


BOOK

+ N
+ [_____ +NEUT -DAT -LOC -INS +AGT]
- FACT
- S
+ COMMON
+ COUNT
* ABSTRACT
- ANIMATE
* OBJ-DEL
+ PREP NEUT { about
              on


BOTH

+ QUANT
+ DIST
+ N-DEL
- ATTACH
- [[+DEF] _____]
- [[+SPEC] _____]
- INTEGER
+ SHIFT


BOY

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
+ MASC


BREAK

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC]
- FACT
- S
* PASS


BRIDGE

+ N
+ [_____ -NEUT -DAT -INS -AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE
+ PREP LOC over ·


"but"

+ CONJ
+ BUT


BUTTER

+ N
+ COMMON
- COUNT
- ABSTRACT
- ANIMATE

CAN

+ MODAL


CANONIZATION

+ N
+ [_____ -NEUT -LOC -INS]
+ COMMON
+ COUNT
+ ABSTRACT


CANONIZE

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC -INS +AGT]
* PASS


CAREFUL[1]

+ V
+ ADJ
+ [_____ -DAT -LOC -INS +AGT]
- FACT
- IMPER
* EQUI-NP-DEL


CAREFUL[2]

+ V
+ ADJ
+ [_____ -DAT -LOC -INS +AGT]
- S
+ PREP NEUT about


CAT

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- HUMAN
* MASC


CERTAIN[1]

+ V
+ ADJ
+ [_____ +NEUT -DAT -LOC -INS
                    -AGT]
- FACT
- IMPER
- WH-S
* RAISE-TO-SUBJ


CERTAIN[2]

+ V
+ ADJ
+ [_____ +NEUT +DAT -LOC -INS
                    -AGT]
- FACT
- IMPER
- WH-S
* GER


CHAIR

+ N
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE

CHAMPION

+ N
+ [_____ -DAT -INS -AGT]
- FACT
- S
+ COMMON
+ COUNT
* HUMAN
* MASC


CHANCE

+ N
+ [_____ -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* EMOT
* GER
+ EQUI-NP-DEL
+ COMMON
+ COUNT
+ ABSTRACT
+ PREP NEUT of


CHIEF

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
* MASC


CHIEF

+ CHIEF


CHILD

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
* MASC


COME

+ V
- ADJ
+ [_____ -NEUT -DAT -LOC
                    -INS +AGT]


COMMAND[1]

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- WH-S
* PASS
+ EQUI-NP-DEL


COMMAND[2]

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC
                    -INS +AGT]
- FACT
- S
* PASS

CONFIDENT

+ V
+ ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* GER

CONSIDER[1]

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* TO-BE-DEL
+ RAISE-TO-OBJ

CONSIDER[2]

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC -INS +AGT]
- FACT
- WH-S
* PASS
* GER

CONTAIN

+ V
- ADJ
+ [_____ +NEUT -DAT +LOC -INS -AGT]
- FACT
- S
+ LOC → SUBJ

CONTINUE

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC
                          -INS +AGT]
- FACT
- IMPER
- WH-S
+ AGT-INDENT
* PASS
* GER
* EQUI-NP-DEL

COOK[a]

+ V
- ADJ
+ [_____ +NEUT -DAT -INS -AGT]
- FACT
- S
+ [[-ABSTRACT] OBJ]

COOK[b]

+ V
- ADJ
+ [_____ +NEUT -DAT +AGT]
- FACT
- S
* PASS
* OBJ-DEL
+ [[-ABSTRACT] OBJ]

COVER

+ V
- ADJ
+ [_____ -NEUT -DAT +LOC +INS]
- FACT
- S
* PASS
+ [[-ABSTRACT] OBJ]

CROSS

+ V
- ADJ
+ [_____ -NEUT -DAT +LOC -INS +AGT]
* PASS
+ LOC ⟶ OBJ
[across]


DANGEROUS

+ V
+ ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* EMOT
+ AFFECT


DAUGHTER

+ N
+ [_____ -NEUT +DAT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
- MASC


DEAD

+ V
+ ADJ
+ [_____ -NEUT +DAT -LOC -INS -AGT]


DEATH

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
* COUNT
+ ABSTRACT


DEDUCE

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                        -INS -AGT]
- FACT
- IMPER
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ


DEMAND

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- WH-S
+ AGT-IDENT
* PASS
* EQUI-NP-DEL
+ PREP DAT of


DEMAND

+ N
+ [_____ -LOC -INS]
- FACT
- INDIC
- WH-S
+ AGT IDENT
* EQUI-NP-DEL
+ COMMON
+ COUNT
+ ABSTRACT


DEMOLISH

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC +AGT]
- FACT
- S
* PASS


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DEPLORABLE

```
+ V
+ ADJ
+ [____ -NEUT -LOC +INS -AGT]
* EMOT
```

DEPLORE

```
+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- S
* PASS
* EMOT
```

DESTROY

```
+ V
- ADJ
+ [____ +NEUT -DAT -LOC +AGT]
- FACT
- S
* PASS
```

DESTRUCTION

```
+ N
+ [____ -DAT -LOC]
- FACT
- S
+ COMMON
- COUNT
+ ABSTRACT
```

DIE

```
+ V
- ADJ
+ [____ -NEUT +DAT -LOC -INS -AGT]
```

DIFFICULT[1]

```
+ V
+ ADJ
+ [____ +NEUT -DAT -LOC
                -INS -AGT]
- FACT
- IMPER
- WH-S
+ EMOT
* RAISE-OBJ-TO-SUBJ
+ AFFECT
```

DIFFICULT[2]

```
+ V
+ ADJ
+ [____ -DAT -LOC -INS +AGT]
- S
+ AFFECT
+ PREP NEUT about
```

DISCOVER

```
+ V
- ADJ
+ [____ +NEUT -DAT -LOC
                -INS +AGT]
- FACT
- IMPER
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ
```

DOG

```
+ N
+ [____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- HUMAN
* MASC
```

DOUBT

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ AFFECT


DOUBTFUL

+ V  .
+ ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* GER
+ PREP NEUT about


DRAIN[a]

+ V
- ADJ
+ [____ -DAT +LOC +AGT]
- FACT
- S
* PASS
* LOC → OBJ
[from]
+ [[-ABSTRACT] OBJ]
+ [[-ANIMATE] OBJ]


DRAIN[b]

+ V
- ADJ
+ [____ -DAT +LOC -INS -AGT]
- FACT
- S


DREAM

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS
                       -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ PREP NEUT about


EACH

+ QUANT
+ DIST
- ATTACH
* N-DEL
- [____ [+PL]]
- [____ [-COUNT]]
- [[+DEF] ____]
- [[+SPEC] ____]
- INTEGER
+ SHIFT


EAGER

+ V
+ ADJ
+ [____ +DAT -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
+ EMOT
+ EQUI-NP-DEL


EAGERNESS

+ N
+ [____ -DAT -LOC -INS]
- FACT
- INDIC
- WH-S
+ EMOT
+ EQUI-NP-DEL
+ COMMON
- COUNT
+ ABSTRACT
+ PREP NEUT for

**EARLY**

+ ADV
+ TEMPORAL


**EASINESS**

+ N
+ [_____ -DAT -LOC -INS -AGT]
- FACT
- S
+ COMMON
- COUNT
+ ABSTRACT


**EASY**

+ V
+ ADJ
+ [_____ +NEUT -DAT -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
+ EMOT
* RAISE-OBJ-TO-SUBJ


**EAT**

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC +AGT]
- FACT
- S
* PASS
* OBJ-DEL
+ [[-ABSTRACT] OBJ]


**EITHER**

+ QUANT
+ DIST
- ATTACH
* N-DEL
- [_____ [+PL]]
- [_____ [-COUNT]]
- [[+DEF] _____]
- [[+SPEC] _____]
- INTEGER
- SHIFT


**ELAPSE**

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC
                -INS -AGT]
- FACT
- S


**ELECT**

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
+ TO-BE-DEL
+ RAISE-TO-OBJ


**ELECTION**

+ N
+ [_____ -NEUT -LOC -INS]
+ COMMON
+ COUNT
+ ABSTRACT

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**EMISSARY**

+ N
+ [_____ -NEUT -LOC -INS]
+ COMMON
+ COUNT
+ HUMAN
* MASC


**EMPHASIZE**

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- S
* PASS


**EMPLOY**

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC -INS +AGT]
* PASS


**EMPLOYEE**

+ N
+ [_____ -NEUT -DAT -LOC -INS]
+ COMMON
+ COUNT
+ HUMAN
* MASC


**EMPLOYER**

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
* MASC


**EMPLOYMENT**

+ N
+ [_____ -NEUT -LOC -INS]
+ COMMON
- COUNT
+ ABSTRACT


**EMPTY**[a]

+ V
- ADJ
+ [_____ -DAT +LOC +AGT]
- FACT
- S
* PASS
* LOC → OBJ
[from]
+ [[-ABSTRACT] OBJ]
+ [[-ANIMATE] OBJ]


**EMPTY**[b]

+ V
- ADJ
+ [_____ -NEUT -DAT +LOC -INS
                        -AGT]


**ENJOY**

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS
                        -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ GER

ENTER

+ V
- ADJ
+ [_____ -NEUT -DAT -INS +AGT]
* PASS
+ LOC →OBJ
[in]


ENTRANCE

+ N
+ [_____ -NEUT -DAT -INS -AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE


EVERY

+ QUANT
+ DIST
+ ATTACH
- N-DEL
- [_____ [+PL]]
- [_____ [-COUNT]]
- [[+DEF] _____]
- [[+SPEC] _____]
- INTEGER
- SHIFT


EXPECT[1]

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ FUT-REDUCT
* RAISE-TO-OBJ


EXPECT[2]

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- WH-S
* PASS
+ EQUI-NP-DEL
+ PREP DAT of


EXPLAIN[a]

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- FACT
- IMPER
* PASS


EXPLAIN[b]

+ V
- ADJ
+ [_____ +NEUT -LOC +INS -AGT]
- FACT
- IMPER
* PASS


FACT

+ N
+ [_____ -DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
+ COMMON
+ COUNT
+ ABSTRACT

FAMILIAR

+ V
+ ADJ
+ [____ +NEUT -LOC -INS -AGT]
- FACT
- S
+ PREP NEUT <u>with</u>


FATHER

+ N
+ [____ -NEUT +DAT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
+ MASC


FEEL[1]

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ


FEEL[2]

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ TO-DEL
+ RAISE-TO-OBJ


FEEL[3]

+ V
- ADJ
+ [____ +NEUT -DAT -LOC +AGT]
- FACT
- S
* PASS


"<u>few/little</u>"

+ QUANT
- DIST
- ATTACH
+ N-DEL
* [____ [+PL]]
* [____ [-COUNT]]
* [[+DEF] ____]
* [[-DEF] ____]


FIDO

+ N
- COMMON
- HUMAN
+ MASC


FIFTH

+ ORD


FILL[a]

+ V
- ADJ
+ [____ -DAT +LOC +AGT]
- FACT
- S
* PASS
+ LOC ⟶ OBJ, NEUT
[into]       [with]
+ [[-ABSTRACT] OBJ]
+ [[-ANIMATE] OBJ]

FILL[b]

+ V
- ADJ
+ [____ -DAT +LOC -INS -AGT]
- FACT
- S
* LOC ⟶ OBJ,NEUT
[into]      [with]
+ LOC ⟶ SUBJ


FINISH

+ V
- ADJ
+ [____ +NEUT -DAT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
+ AGT-IDENT
* PASS
+ GER


FIRST

+ ORD


FIVE

+ QUANT
- DIST
- ATTACH
+ N-DEL
+ [____ [+PL]]
- [____ [-COUNT]]
+ INTEGER


FOND

+ V
+ ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
+ GER


FONDNESS

+ N
+ [____ -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
+ GER
+ COMMON
- COUNT
+ ABSTRACT
+ PREP NEUT for


FORCE

+ V
- ADJ
+ [____ +NEUT + DAT -LOC
- FACT              + AGT]
- INDIC
- WH-S
* PASS
+ EQUI-NP-DEL
+ DAT ⟶ OBJ


FORGET[1]

+ V
- ADJ
+ [____ +NEUT +DAT -LOC
                  -INS -AGT]
- FACT
- IMPER
+ AGT-IDENT
* PASS
+ EQUI-NP-DEL
+ AFFECT

FORGET[2]

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- S
* PASS
+ AFFECT
+ PREP NEUT <u>about</u>


FOUR

+ QUANT
- DIST
- ATTACH
+ N-DEL
+ [_____ [+PL]]
- [_____ [-COUNT]]
+ INTEGER


FOURTH

+ ORD


FROM

+ PREP
+ LOC
+ DIR


FULL

+ V
+ ADJ
+ [_____ -NEUT -DAT +LOC -INS -AGT]


GENEROUS

+ V
+ ADJ
+ [_____ -LOC -INS +AGT]
- FACT
- S
+ PREP NEUT <u>with</u>


GIFT

+ N
+ [_____ -LOC -INS +AGT]
- FACT
- S
+ COMMON
+ COUNT
* ABSTRACT
+ PREP AGT <u>from</u>


GIRL

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
- MASC


GIVE

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS +AGT]
- FACT
- S
* PASS
* DAT → OBJ

GO

```
+ V
- ADJ
+ [____ -NEUT -DAT -INS +AGT]
```

GRASP[1]

```
+ V
- ADJ
+ [____ +NEUT -DAT -LOC +AGT]
- FACT
- S
* PASS
+ [[-ABSTRACT] OBJ]
```

GRASP[2]

```
+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- S
* PASS
+ [[+ABSTRACT] OBJ]
```

GUILTY

```
+ V
+ ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
+ GER
```

HAPPEN[1]

```
+ V
- ADJ
+ [____ +NEUT -DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* RAISE-TO-SUBJ
```

HAPPEN[2]

```
+ V
- ADJ
+ [____ +NEUT -INS -AGT]
- FACT
- S
```

HARD

```
+ ADV
+ MANNER
```

HARD

```
+ V
+ ADJ
+ [____ +NEUT -DAT -LOC
              -INS -AGT]
- FACT
- IMPER
- WH-S
+ EMOT
* RAISE-OBJ-TO-SUBJ
```

HAT

```
+ N
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE
```

HATE[1]

```
+ V
- ADJ
+ [____ +NEUT +DAT -LOC
              -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ EMOT
* GER
+ EQUI-NP-DEL
+ AFFECT
```

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HATE²

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- S
* PASS
+ EXTRA
+ AFFECT


HELP

+ V
- ADJ
+ [_____ +DAT -LOC +AGT]
- FACT
- IMPER
- WH-S
* PASS
* TO-DEL
+ EQUI-NP-DEL


HAVE

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- S


HERE

+ ADJ
+ LOC
- FAR


HEAD

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE


HIT^a

+ V
- ADJ
+ [_____ -NEUT -DAT +LOC +AGT]
* PASS
+ [[-ABSTRACT] OBJ]


HIT^b

+ V
- ADJ
+ [_____ -NEUT -DAT +LOC
                    +INS -AGT]
* PASS
+ [[-ABSTRACT] OBJ]


HEAR

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
* PASS
+ TO-DEL
* RAISE-TO-OBJ

HOPE

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
* EQUI-NP-DEL
+ PREP NEUT _for_


HOPE

+ N
+ [_____ -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* GER
+ COMMON
* COUNT
+ ABSTRACT


HORSE

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- HUMAN


"I"

+ ART
+ DEF
- DEM
- GEN
+ COUNT
+ I
- II
- III
- PL


IGNORANCE

+ N
+ [_____ -LOC -INS -AGT]
- S
+ COMMON
- COUNT
+ ABSTRACT
+ AFFECT


IGNORE

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC
                    -INS +AGT]
- S
* PASS
+ AFFECT


IMAGINE

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
* GER
+ STAT-REDUCT
* RAISE-TO-OBJ


IMPORTANT

+ V
+ ADJ
+ [_____ -NEUT -LOC +INS -AGT]
* EMOT


987

IMPRISON

+ V
- ADJ
+ [____ -NEUT +DAT +AGT]
* PASS


IMPRISONMENT

+ N
+ [____ -NEUT]
+ COMMON
- COUNT
+ ABSTRACT


IN

+ PREP
+ LOC
- DIR


INNER

+ CHIEF


INFORM

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ DAT⟶OBJ
+ PREP NEUT of


INQUIRE

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- IMPER
* PASS
+ PREP DAT of


INSIST[1]

+ V
- ADJ
+ [____ +NEUT -DAT -LOC
                    -INS +AGT]
- FACT
- INDIC
- WH-S
* PASS
* GER
+ PREP NEUT on


INSIST[2]

+ V
- ADJ
+ [____ +NEUT -DAT -LOC
                    -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS


INSISTENCE

+ N
+ [____ -DAT -LOC -INS]
- FACT
- WH-S
* GER
+ COMMON
- COUNT
+ ABSTRACT
+ PREP NEUT on

INSULT

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC -INS +AGT]
* PASS


INSULT

+ N
+ [_____ -NEUT -LOC -INS +AGT]
+ COMMON
+ COUNT
+ ABSTRACT
+ PREP AGT from


INTEND

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
* PASS
* EMOT
* GER
+ EQUI-NP-DEL


INTENTION

+ N
+ [_____ -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
* EMOT
+ EQUI-NP-DEL
+ COMMON
+ COUNT
+ ABSTRACT


INTEREST

+ N
+ [_____ -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
+ GER
+ COMMON
- COUNT
+ ABSTRACT
+ PREP NEUT in


INTERESTED

+ V
+ ADJ
+ [_____ +NEUT +DAT -LOC
                      -INS -AGT]
- FACT
- IMPER
+ GER
+ PREP NEUT in


INTIMATE

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- FACT
- IMPER
* PASS


INTO

+ PREP
+ LOC
+ DIR

JOHN

+ N
- COMMON
+ HUMAN
+ MASC


KEEN

+ V
+ ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
* GER
+ EQUI-NP-DEL
+ PREP NEUT on


KEEP$^1$

+ V
- ADJ
+ [____ +NEUT -DAT -LOC -INS +AGT]
- FACT
- S
* PASS


KEEP$^2$

+ V
- ADJ
+ [____ +NEUT -DAT +LOC -INS +AGT]
- FACT
- S
* PASS


KENNEL

+ N
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE


KEY

+ N
+ [____ -NEUT -DAT -INS -AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE


KILL[a]

+ V
- ADJ
+ [____ -NEUT +DAT -LOC +AGT]
- FACT
- S
* PASS


KILL[b]

+ V
- ADJ
+ [____ -NEUT +DAT -LOC
                    +INS -AGT]
- FACT
- S
* PASS


KILLING

+ N
+ [____ -NEUT -LOC]
+ COMMON
- COUNT
+ ABSTRACT


KING

+ N
+ [____ -DAT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
+ MASC

LAST

+ ORD


LATE

+ ADV
+ TEMPORAL


LAUGH

+ V
- ADJ
+ [____ -DAT -LOC -INS +AGT]
- FACT
- S
* PASS
+ PREP NEUT at


LEARN[1]

+ V
- ADJ
+ [____ -DAT -LOC -INS +AGT]
- FACT
- IMPER
+ AGT-IDENT
* PASS
* EQUI-NP-DEL


LEARN[2]

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
* PASS


LEG

+ N
+ [____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE


LET

+ V
- ADJ
+ [____ +NEUT +DAT -LOC
                    -INS +AGT]
- FACT
- INDIC
- WH-S
+ TO-DEL
+ EQUI-NP-DEL
+ DAT→OBJ


LETHAL

+ V
+ ADJ
+ [____ -NEUT -LOC +INS -AGT]


LIKE[1]

+ V
- ADJ
+ [____ +NEUT +DAT -LOC
                    -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ EMOT
* GER
+ EQUI-NP-DEL


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LIKE[2]

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- S
* PASS
+ EXTRA


LIKELY

+ V
+ ADJ
+ [_____ +NEUT -DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* RAISE-TO-SUBJ


LISTEN

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC +AGT]
- FACT
- S
* PASS
+ PREP NEUT to


LOOK

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC +AGT]
- FACT
- S
* PASS
+ PREP NEUT at


LOWER

+ CHIEF


MAIN

+ CHIEF


MAKE[1]

+ V
- ADJ
+ [_____ +NEUT -DAT +AGT]
- FACT
- S
* PASS


MAKE[2]

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC +AGT]
- FACT
- INDIC
- WH-S
* PASS
+ TO-DEL
+ EQUI-NP-DEL
+ DAT⟶OBJ


MARE

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- HUMAN
- MASC


MARK[a]

+ V
- ADJ
+ [_____ -NEUT -DAT +LOC +AGT]
* PASS
+ LOC⟶OBJ
 [on]

MARK[b]

+ V
- ADJ
+ [_____ -NEUT -DAT +LOC +INS -AGT]
* PASS
+ LOC⟶OBJ
 [on]


MOVE

+ V
- ADJ
+ [_____ +NEUT -DAT]
- FACT
- S
* PASS


MARY

+ N
- COMMON
+ HUMAN
- MASC


"much/many"

+ QUANT
- DIST
- ATTACH
+ N-DEL
* [_____ [+PL]]
* [_____ [-COUNT]]
* [[+DEF] _____]
* [[-DEF] _____]


MAY

+ MODAL


MILK

+ N
+ COMMON
- COUNT
- ABSTRACT
- ANIMATE


MURDER

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC +AGT]
* PASS


MURDER

+ N
+ [_____ -NEUT -LOC]
+ COMMON
+ COUNT
+ ABSTRACT


MOTHER

+ N
+ [_____ -NEUT +DAT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
- MASC


MUST

+ MODAL

NEAR

+ PREP
+ LOC
- DIR


NEXT

+ ORD


NOISY[a]

+ V
+ ADJ
+ [_____ -NEUT -DAT -LOC -INS +AGT]


NOISY[b]

+ V
+ ADJ
+ [_____ -NEUT -DAT +LOC -INS -AGT]


NOW

+ ADV
+ TEMPORAL
- FAR


OFTEN

+ ADV
+ FREQ


OLD

+ V
+ ADJ
+ [_____ +NEUT -DAT -LOC -INS -AGT]
- FACT
- S


OLD

+ CHIEF


ON

+ PREP
+ LOC
- DIR


ONE

+ QUANT
- DIST
- ATTACH
+ N-DEL
- [_____ [+PL]]
- [_____ [-COUNT]]
- INTEGER


ONE

+ N
+ PRO
+ ATTACH
+ HUMAN
* MASC
+ COUNT
- PLURAL


ONE

+ N
+ PRO
- ATTACH
* HUMAN
* MASC
+ COUNT
* PLURAL

ONTO

+ PREP
+ LOC
+ DIR


OPEN

+ V
- ADJ
+ [____ +NEUT -DAT -LOC]
- FACT
- S
* PASS
+ [[-ABSTRACT] OBJ]
+ [[-ANIMATE] OBJ]


"or"

+ CONJ
+ OR


ORDER

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- WH-S
+ DAT-IDENT
* PASS
+ EQUI-NP-DEL


ORDER

+ N
+ [____ -LOC -INS]
- FACT
- INDIC
- WH-S
+ DAT-IDENT
* EQUI-NP-DEL
+ COMMON
+ COUNT
+ ABSTRACT


OUT OF

+ PREP
+ LOC
+ DIR


OUTER

+ CHIEF


OWN

+ V
- ADJ
+ [____ +NEUT +DAT -LOC
              -INS -AGT]
- FACT
- S
* PASS
+ [[-ABSTRACT] OBJ]


PASS$^1$

+ V
- ADJ
+ [____ +NEUT -LOC +AGT]
- FACT
- S
* PASS
* DAT⟶OBJ
+ [[-ABSTRACT] OBJ]


PASS$^2$

+ V
- ADJ
+ [____ -NEUT -DAT -INS +AGT]
* PASS
* LOC ⟶OBJ
 [by]
+ [[-ABSTRACT] OBJ]

PASS³

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC -INS]
- FACT
- S
+ [[+ABSTRACT] OBJ]


PAW

+ N
+ [_____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE


PERF

HAVE   EN


PERPETRATOR

+ N
+ [_____ -DAT -LOC -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
* MASC


PERSUADE

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC +AGT]
- FACT
- INDIC
- WH-S
+ DAT-IDENT
* PASS
* EQUI-NP-DEL


PLACE

+ N
+ PRO
+ ATTACH
- HUMAN
+ COUNT
- PLURAL


POOR

+ V
+ ADJ
+ [_____ -NEUT +DAT -LOC
                    -INS -AGT]


POOR

+ CHIEF


PORTRAIT

+ N
+ [_____ -NEUT +DAT -LOC
                    -INS +AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE
* OBJ-DEL


PREFER

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS -AGT]
- FACT
- INDIC
- WH-S
* PASS
* EMOT
* GER
* EQUI-NP-DEL


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## PREFERABLE

+ V
+ ADJ
+ [_____ +NEUT -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
* EMOT

## PREFERENCE

+ N
+ [_____ -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
+ GER
+ COMMON
+ COUNT
+ ABSTRACT
+ PREP NEUT for

## PRIDE

+ N
+ [_____ -LOC -INS -AGT]
- S
+ COMMON
- COUNT
+ ABSTRACT
+ PREP NEUT in

## PRINCIPAL

+ CHIEF

## PROBABLE

+ V
+ ADJ
+ [_____ +NEUT -DAT -LOC
                    -INS -AGT]
- FACT
- IMPER
- WH-S

## PROG

BE  ING

## PROMOTE

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC
                    -INS +AGT]
* PASS

## PROOF

+ N
+ [_____ -DAT -LOC -INS]
- FACT
- IMPER
- WH-S
+ COMMON
+ COUNT
* ABSTRACT
- ANIMATE

## PROUD

+ V
+ ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS -AGT]
- S

PROVE[a]

+ V
- ADJ
+ [_____ +NEUT -LOC +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* TO-BE-DEL
* RAISE-TO-OBJ


PROVE[b]

+ V
- ADJ
+ [_____ +NEUT -LOC +INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* TO-BE-DEL
* RAISE-TO-OBJ


RAIN

+ V
- ADJ
+ [_____ -NEUT -DAT -LOC -INS -AGT
                              -ESS]


REBUKE

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC -INS +AGT]
* PASS


REBUKE

+ N
+ [_____ -NEUT -LOC -INS +AGT]
+ COMMON
+ COUNT
+ ABSTRACT
+ PREP AGT from


RECEIVE[1]

+ V
- ADJ
+ [_____ +NEUT +DAT -INS -AGT]
- FACT
- S
* PASS


RECEIVE[2]

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC
                      -INS +AGT]
* PASS


REFUSAL

+ N
+ [_____ -DAT -LOC -INS]
- FACT
- IMPER
- WH-S
+ AGT-IDENT
+ EQUI-NP-DEL
+ COMMON
+ COUNT
+ ABSTRACT
+ AFFECT

REFUSE

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
+ AGT-IDENT
* PASS
+ EQUI-NP-DEL
+ AFFECT


REGRET

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- S
* PASS
+ AFFECT


RELY

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC -INS +AGT]
- S
* PASS
+ PREP NEUT (up)on


REMEMBER[1]

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- S
* PASS


REMEMBER[2]

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS -AGT]
- FACT
- IMPER
* PASS
* EQUI-NP-DEL


REPUTE

+ V
+ [_____ +NEUT -DAT -LOC
                    -INS +AGT]
+ S
- IMPER
- WH-S
+ PASS
+ RAISE-TO-SUBJ


REQUIRE

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- WH-S
* PASS
* EQUI-NP-DEL
+ PREP DAT of


RESENT

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS -AGT]
- S
* PASS
+ AFFECT


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RESENTMENT

+ N
+ [_____ -LOC -INS -AGT]
- S
+ COMMON
- COUNT
+ ABSTRACT
+ AFFECT
+ PREP NEUT at


RESIDE

+ V
- ADJ
+ [_____ -NEUT -DAT +LOC -INS +AGT]


RUMOR

+ V
+ [_____ +NEUT -DAT -LOC -INS +AGT]
+ S
- IMPER
- WH-S
+ PASS


RUN

+ V
- ADJ
+ [_____ -NEUT -DAT -INS +AGT]


SAY

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ


SCARE[a]

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC +AGT]
* PASS


SCARE[b]

+ V
- ADJ
+ [_____ -NEUT +DAT -LOC
                    +INS -AGT]
* PASS
* EMOT


SECOND

+ ORD


SEE

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS -AGT]
- FACT
- IMPER
* PASS
+ TO-DEL
* RAISE-TO-OBJ


SEEM

+ V
- ADJ
+ [_____ +NEUT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* RAISE-TO-SUBJ

SEND

+ V
- ADJ
+ [____ +NEUT -INS +AGT]
- FACT
- S
* PASS
* DAT⟶OBJ


SEVERAL

+ QUANT
- DIST
- ATTACH
+ N-DEL
- [____ [-COUNT]]
+ [____ [+PL]]
- [[-SPEC] ____]
- INTEGER
- SHIFT


SHALL

+ MODAL


SHOW[a]

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- IMPER
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ
* DAT⟶OBJ


SHOW[b]

+ V
- ADJ
+ [____ +NEUT -LOC +INS -AGT]
- FACT
- IMPER
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ
+ DAT⟶OBJ


SICK[1]

+ V
+ ADJ
+ [____ -NEUT -DAT -LOC
              -INS +AGT]


SICK[2]

+ V
+ ADJ
+ [____ -NEUT +DAT -LOC
              -INS -AGT]


SICK[3]

+ V
+ ADJ
+ [____ +NEUT +DAT -LOC
              -INS -AGT]
- FACT
- IMPER
- WH-S
+ GER
+ AFFECT

SIGNIFICANT

+ V
+ ADJ
+ [____ -NEUT -LOC +INS -AGT]
* EMOT


"SJC"

+ MODAL


SLEEPY

+ V
+ ADJ
+ [____ -NEUT +DAT -LOC -INS -AGT]


SMEAR

+ V
- ADJ
+ [____ +NEUT -DAT +LOC +AGT]
- FACT
- S
* PASS
* LOC →OBJ,NEUT
  [on]     [with]
+ [[-ABSTRACT] OBJ]
+ [[-ANIMATE] OBJ]


"some"

+ ART
- DEF
+ DEM
- WH
* SPEC
* COUNT


SON

+ N
+ [____ -NEUT +DAT -LOC
                -INS -AGT]
+ COMMON
+ COUNT
+ HUMAN
+ MASC


SOON

+ ADV
+ TEMPORAL


STALLION

+ N
+ [____ -NEUT -LOC -INS -AGT]
+ COMMON
+ COUNT
- HUMAN
+ MASC


STATUE

+ N
+ [____ -NEUT +DAT -LOC
                -INS +AGT]
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE
* OBJ-DEL


STICK

+ N
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE

STOP

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC]
- FACT
- IMPER
- WH-S
* PASS
+ GER
+ AFFECT


STORY

+ N
+ [_____ +NEUT -DAT -LOC -INS +AGT]
- FACT
- IMPER
+ GER
+ COMMON
+ COUNT
+ ABSTRACT
* OBJ-DEL
+ PREP NEUT about


SUFFICE

+ V
- ADJ
+ [_____ -NEUT -DAT -LOC +INS -AGT]
* EMOT


SUGGEST[1]

+ V
- ADJ
+ [_____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- WH-S
* PASS
* GER


SUGGEST[2]

+ V
- ADJ
+ [_____ +NEUT -LOC +INS -AGT]
- FACT
- IMPER
- WH-S
* PASS


SUGGESTION

+ N
+ [_____ -LOC -INS]
- FACT
- INDIC
- IMPER
* GER
+ COMMON
+ COUNT
+ ABSTRACT
+ PREP NEUT for


SUPPOSE

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ

SURE[1]

+ V
+ ADJ
+ [_____ +NEUT -DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
+ RAISE-TO-SUBJ


SURE[2]

+ V
+ ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* GER


TABLE

+ N
+ COMMON
+ COUNT
- ABSTRACT
- ANIMATE


TELL[1]

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS +AGT]
- FACT
- WH-S
* PASS
* EQUI-NP-DEL


TELL[2]

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC
                    -INS +AGT]
- S
* PASS
+ PREP NEUT about


"that"

+ ART
+ DEF
+ DEM
- WH
+ FAR
* N-DEL
* COUNT
- I
- II
+ III


"the"

+ ART
+ DEF
- DEM
- GEN
* COUNT
- I
- II
+ III

THEN

+ ADV
+ TEMPORAL
+ FAR


THERE

+ ADV
+ LOC
+ FAR


THING

+ N
+ PRO
+ ATTACH
- HUMAN
* COUNT
- PLURAL


THINK¹

+ V
- ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
* PASS
+ STAT-REDUCT
* TO-BE-DEL
* RAISE-TO-OBJ


THINK²

+ V
- ADJ
+ [_____ -DAT -LOC -INS +AGT]
- S
+ PREP NEUT about


THINK³

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC
              -INS +AGT]
- FACT
- IMPER
- WH-S
* PASS
+ GER


THIRD

+ ORD


"this"

+ ART
+ DEF
+ DEM
- WH
- FAR
* N-DEL
* COUNT
- I
- II
+ III


THREE

+ QUANT
- DIST
- ATTACH
+ N-DEL
+ [_____ [+PL]]
- [_____ [-COUNT]]
+ INTEGER

TIME

+ N
+ PRO
+ ATTACH
- HUMAN
+ COUNT
* PLURAL


TIRED[1]

+ V
+ ADJ
+ [_____ -NEUT +DAT -LOC -INS -AGT]


TIRED[2]

+ V
+ ADJ
+ [_____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- IMPER
- WH-S
+ GER


"TNS"

* PAST


TO

+ PREP
+ LOC
+ DIR


TRAGIC

+ V
+ ADJ
+ [_____ -NEUT -LOC +INS -AGT]
* EMOT
+ AFFECT


TRY

+ V
- ADJ
+ [_____ +NEUT -DAT -LOC
                    -INS +AGT]
- FACT
- INDIC
- WH-S
+ AGT-IDENT
* PASS
* GER
+ EQUI-NP-DEL


TWO

+ QUANT
- DIST
- ATTACH
+ N-DEL
+ [_____ [+PL]]
- [_____ [-COUNT]]
+ INTEGER


UNLIKELY

+ V
+ ADJ
+ [_____ +NEUT -DAT -LOC
                    -INS -AGT]
- FACT
- IMPER
- WH-S
* RAISE-TO-SUBJ
+ AFFECT


UNDERSTAND

+ V
- ADJ
+ [_____ +DAT -LOC -INS -AGT]
- FACT
- IMPER
* PASS
+ STAT-REDUCT
* RAISE-TO-OBJ

UPPER

+ CHIEF


URGE

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- INDIC
- WH-S
+ DAT-IDENT
* PASS
* EQUI-NP-DEL


VERY

+ ADV
+ DEG


WANT

+ V
- ADJ
+ [____ +NEUT +DAT -LOC -INS -AGT]
- FACT
- INDIC
- WH-S
* PASS
+ EMOT
+ EQUI-NP-DEL


WARN$^1$

+ V
- ADJ
+ [____ +NEUT -LOC -INS +AGT]
- FACT
- WH-S
- AGT-IDENT
* PASS
* EQUI-NP-DEL


WARN$^2$

+ V
- ADJ
+ [____ +NEUT +DAT -LOC
                -INS +AGT]
- S
* PASS
+ PREP NEUT about


"we"

+ ART
+ DEF
- DEM
- GEN
+ COUNT
+ I
* II
* III
+ PL


WELL

+ ADV
+ MANNER


"what"

+ ART
- DEF
+ DEM
+ WH
* COUNT


"whether"

+ CONJ
+ OR
+ WH

WILL

+ MODAL


"you"

+ ART
+ DEF
- DEM
- GEN
+ COUNT
- I
+ II
- III
- PL


"you"

+ ART
+ DEF
- DEM
- GEN
+ COUNT
- I
+ II
* III
+ PL

III.  THE SECOND LEXICAL LOOKUP

A.  Discussion

     The present grammar utilizes a second lexical insertion pro-
cedure which follows the last rule of the transformational component.
The function of the second insertion process is to attach phono-
logical matrices to clusters of semantic-syntactic features that
have resulted from operations of the transformational component.
Such an operation is not unique to this grammar; the suggestion of
some such operation has been made informally many times before.  In
particular, Fillmore proposed that pronouns were to be viewed as
feature clusters whose phonological realizations were not interest-
ingly related and therefore ought to be inserted following the trans-
formational operations (cf. Fillmore, 1966d).

     Typical of the operations for which the second lexical inser-
tion process is useful is the set of rules that produce the surface
pronouns in this grammar.  The pronouns, as can be seen in the sec-
tion on Pronominalization, are never inserted in their surface forms
in the first pass through the lexicon.

     A non-anaphoric definite pronoun is derived from a full noun
phrase expanded by the PS-rules as (36).

(36)
```
                        NP
                      /    \
                  DET       NOM
                   |         |
                  ART        N
```
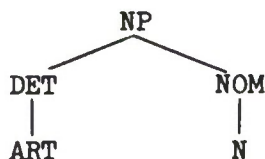
To this tree the first lexical insertion procedure can attach the
definite article the and the PRO-noun one, with the following fea-
tures as one possibility assigned by the first lexical lookup (but
with no phonological matrices):

(37)

$$
\begin{array}{ccc}
& \text{NP} & \\
& \diagup\diagdown & \\
\text{DET} & & \text{NOM} \\
| & & | \\
\text{ART} & & \text{N} \\
| & & | \\
\begin{bmatrix} +\text{ART} \\ +\text{DEF} \\ -\text{DEM} \\ +\text{I} \\ -\text{II} \\ +\text{III} \end{bmatrix} & & \begin{bmatrix} +\text{N} \\ -\text{ATTACH} \\ +\text{PL} \\ +\text{HUMAN} \end{bmatrix}
\end{array}
$$
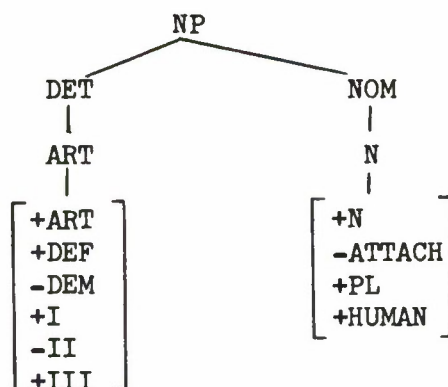
At this point neither of the two constituents of the NP above has accompanying phonological specifications. In addition, the cluster of features that is dominated by N is identical to the cluster of features that result from the N reduction rules that form a part of the derivation of anaphoric pronominalization (cf. PRO section).

Feature-copying rules (also in PRO section) copy the features +PL, +HUMAN from the N onto the ART; the Deletion of Noun Node rule (PRO section) deletes the N altogether, adding +PRO to the ART, leaving the structure (38):

(38)

$$
\begin{array}{c}
\text{NP} \\
| \\
\text{DET} \\
| \\
\text{ART} \\
| \\
\begin{bmatrix} +\text{ART} \\ +\text{DEF} \\ -\text{DEM} \\ +\text{PL} \\ +\text{HUMAN} \\ +\text{I} \\ -\text{II} \\ +\text{III} \\ +\text{PRO} \end{bmatrix}
\end{array}
$$
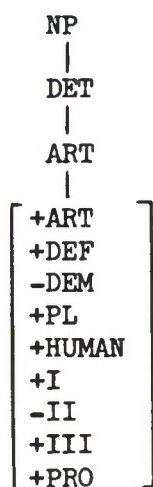
There is still no phonological specification associated with this complex symbol.

Finally the string of which this NP is a part emerges from the transformational component, but the phonological rules cannot yet apply because there are sentence constituents that are still

without phonological specifications.  At this point the second
lexical lookup applies.  In the case of the tree in (38) <u>we</u> will
be attached.  If +ACCUS had been added by the objective case-marking
rule (see PRO), the form would be <u>us</u>; addition of the feature +GENIT
would give <u>our</u> or <u>ours</u>, though, in fact, these genitive forms have
not been included in the sample second lexicon because of the pro-
blems in keeping the two feature specifications distinct (see dis-
cussion in GEN).

The second lexical lookup is utilized in the present grammar
to attach phonological matrices to already existing feature com-
plexes.  The operation as it is presently viewed does not permit
deletion of nodes or addition of nodes.  For example, in a recent
paper J. Gruber (1967c) proposed insertion possibilities that would
allow a tree expanded as the following:

(39)

```
                    NP
                  /    \
             MOD        N
              |         |
           /male/    /horse/
```
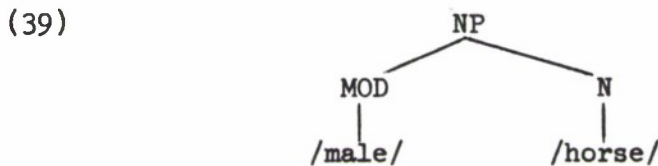
to be replaced by a single lexical item, namely, <u>stallion</u>.  Such
an operation would account for the absence of such NP's as <u>male
stallion</u>, <u>male steer</u>, <u>male tom-cat</u>  and <u>male gander</u>.  The tree
above (39) differs in a rather profound way from the kind of tree
that Gruber's grammar would generate, but the principle is the
same.  The present grammar disallows such power in the second lexi-
cal lookup.

A comparable operation would be the incorporation of Past
Tense in the case of irregular verbs in English.  An affix movement
rule assigns the Past Tense Affix as the right daughter of a
Chomsky-adjoined V node like the tree below:

(40)

```
              V
            /   \
          V      Past
```

The node Past, under certain circumstances, would allow the
attachment of the Past Tense Affix [t], [d] or [ɨd].  The present
constraint on the power of the second lexical lookup would not allow
the tree above to be changed as would have to be the case if the
lower V were an irregular verb; e.g. <u>run</u>, <u>steal</u>....  To allow the
tree above to be changed so that <u>run + Past</u> could be given the
phonological matrices of /rᴂn/ would make the exclusion of <u>stallion</u>

ad hoc. It is difficult to see what possible limits there might
be if such attachment were permitted.

The question of whether the second lexical lookup should re-
quire non-distinctness or strict identity is a serious one. In
favor of the strict identity condition is the fact that many trans-
formationally introduced features appear to be clear instances of
"marked" features, where the opposite value would never appear on
any item--e.g. +REFL, +ACCUS, +GENITIVE, and all the prepositional
features +OF, +WITH, etc. It would seem quite unnatural to have to
introduce -REFL etc. on all deep structure items of the category
on which the transformationally introduced feature could potentially
appear. On the other hand, where the same phonological form cor-
responds to several syntactic feature matrices which have a dis-
tinctive subset of features in common, it seems wasteful to have to
provide multiple entries in the second lexicon. Such is the case,
for example, with we, which must include [+I, +PL] as well as the
other features common to nominative personal pronouns, but is indif-
ferent to [±II], [±III].

Both of these generalizations can be captured if the require-
ment for second lexical lookup is the following:

(41) The phonological matrix P associated with complex
symbol L in the second lexicon is assigned to the
terminal complex symbol S in a given surface struc-
ture tree if the features of L are a subset of the
features of S.

That is, if L contains $+F_1$, S must contain $+F_1$; if L contains
$-F_2$, S must contain $-F_2$; but S may contain some features not men-
tioned in L. This inclusion condition appears to capture the
desirable properties of both strict identity and non-distinctness.

Finally, the kinds of items for which the present grammar
utilizes the second lexical lookup are the following:[1]

---

(1) In the sample lexicon that follows the features marked with an
asterisk could have been omitted in accordance with (40) but
they have been retained in the interests of readability.

1) Determiners;
2) Pronouns--both independent and relative;
3) Negative adverbials, particles, quantifiers and determiners;
4) Prepositions;
5) Conjunctions;
6) Quantifiers resulting from conjunction reduction.

In the sample Second Lexicon which follows representative entries for items (1-4) are given.

B.  Sample Entries for Second Lexicon

## Pronouns and Determiners

<u>I</u>

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
+ I
- II
- III
+ COUNT
- PL
+ HUM

<u>HE</u>

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ COUNT
- PL
+ HUM
+ MASC

<u>ME</u>

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
+ I
- II
- III
+ COUNT
- PL
+ HUM
+ ACCUS

<u>HIM</u>

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ COUNT
- PL
+ HUM
+ MASC
+ ACCUS

## HIM

+ ART
+ PRO
+ REFLEX
- DEM
- GENERIC
- WH
+ ATTACH
+ N-DEL
- I
- II
+ III
+ COUNT
- PL
+ HUM
+ MASC
+ ACCUS

## HER

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ COUNT
- PL
+ HUM
- MASC
+ ACCUS

## SHE

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ COUNT
- PL
+ HUM
- MASC

## HER

+ ART
+ PRO
+ REFLEX
+ DEF
- DEM
- GENERIC
- WH
+ ATTACH
+ N-DEL
- I
- II
+ III
+ COUNT
- PL
+ HUM
- MASC
+ ACCUS

IT

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
* COUNT
- PL
- HUM
+ [$_{NP}$[_____] ]
* ACCUS


IT

+ ART
+ PRO
+ REFLEX
+ DEF
- DEM
- GENERIC
- WH
+ ATTACH
+ N-DEL
- I
- II
+ III
* COUNT
- PL
- HUM
+ ACCUS


WE

+ ART
* PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
+ I
* II
* III
+ PL
+ HUM


US

+ ART
* PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
+ I
* II
* III
+ PL
+ HUM
+ ACCUS

YOU

+ ART
* PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
+ II
* III
+ COUNT
* PL
+ HUM
* ACCUS


THEM

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ PL
* HUM
* MASC
+ [_NP[____] ]
+ ACCUS


THEY

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ PL
* HUM
* MASC
+ [_NP[____] ]


THEM

+ ART
+ PRO
+ REFLEX
+ DEF
- DEM
- GENERIC
- WH
+ ATTACH
+ N-DEL
- I
- II
+ III
+ PL
+ ACCUS

## SELF

+ PRO
+ COUNT
- PL
+ REFLEX
+ ATTACH


## SELVES

+ PRO
+ PL
+ REFLEX
+ ATTACH


## A

+ ART
- PRO
- DEF
- DEM
- GENERIC
* SPEC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ COUNT
- PL
- INDET


## SOME (sm)

+ ART
- PRO
- DEF
- DEM
- GENERIC
* SPEC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
$\left\{ \begin{array}{l} - \text{COUNT} \\ + \text{PL} \end{array} \right\}$
- INDET


## SOME

+ ART
+ PRO
- DEF
- DEM
- GENERIC
* SPEC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
$\left\{ \begin{array}{l} - \text{COUNT} \\ + \text{PL} \end{array} \right\}$
- INDET

## SOME

+ ART
- PRO
- DEF
+ DEM
- GENERIC
\* SPEC
- WH
+ ATTACH
- N-DEL
- I
- II
+ III
\* COUNT
\* PL

## ONE

+ ART
+ PRO
- DEF
- DEM
- GENERIC
\* SPEC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ COUNT
- PL
- INDET

## NO

+ ART
- PRO
- DEF
- DEM
- GENERIC
- SPEC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
\* COUNT
\* PL
+ INDET
+ NEG

## NO

+ ART
- PRO
- DEF
+ DEM
- GENERIC
- SPEC
- WH
+ ATTACH
- N-DEL
- I
- II
+ III
\* COUNT
\* PL
+ INDET
+ NEG

ANY

+ ART
* PRO
- DEF
- DEM
- GENERIC
- SPEC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
* COUNT
* PL
+ INDET
- NEG

NONE

+ ART
+ PRO
- DEF
- DEM
- GENERIC
- SPEC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
* COUNT
* PL
+ INDET
+ NEG

ANY

+ ART
- PRO
- DEF
+ DEM
- GENERIC
- SPEC
- WH
+ ATTACH
- N-DEL
- I
- II
+ III
* COUNT
* PL
+ INDET
- NEG

THE

+ ART
- PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
* COUNT
* PL
+ [____N]

THIS

+ ART
* PRO
+ DEF
+ DEM
- GENERIC
- WH
- ATTACH
* N-DEL
- I
- II
+ III
* COUNT
- PL
- FAR

THAT

+ ART
* PRO
+ DEF
+ DEM
- GENERIC
- WH
- ATTACH
* N-DEL
- I
- II
+ III
* COUNT
- PL
+ FAR

THESE

+ ART
* PRO
+ DEF
+ DEM
- GENERIC
- WH
- ATTACH
* N-DEL
- I
- II
+ III
+ PL
- FAR

THOSE

+ ART
* PRO
+ DEF
+ DEM
- GENERIC
- WH
- ATTACH
* N-DEL
- I
- II
+ III
+ PL
+ FAR

THAT

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
- COUNT
- HUM
- [~NP~[_____] ]

WHICH

+ ART
* PRO
+ DEF
+ DEM
- GENERIC
+ WH
- ATTACH
* N-DEL
- I
- II
+ III
* COUNT
* PL
* HUM

THOSE

+ ART
+ PRO
+ DEF
- DEM
- GENERIC
- WH
- ATTACH
+ N-DEL
- I
- II
+ III
+ PL
- HUM
- [~NP~[_____] ]

WHAT

+ ART
- PRO
- DEF
+ DEM
- GENERIC
- SPEC
+ WH
+ ATTACH
- N-DEL
- I
- II
+ III
* COUNT
* PL

## Relative Pronouns

| WHO | WHICH |
|-----|-------|
| + ART | + ART |
| + PRO | + PRO |
| - DEF | - DEF |
| - DEM | - DEM |
| - GENERIC | - GENERIC |
| + SPEC | + SPEC |
| + WH | + WH |
| + REL | + REL |
| - ATTACH | - ATTACH |
| + N-DEL | + N-DEL |
| - I | - I |
| - II | - II |
| + III | + III |
| + COUNT | * COUNT |
| * PL | * PL |
| + HUM | - HUM |

| WHOM | THAT |
|------|------|
| + ART | + ART |
| + PRO | + PRO |
| - DEF | - DEF |
| - DEM | - DEM |
| - GENERIC | - GENERIC |
| + SPEC | + SPEC |
| + WH | + WH |
| + REL | + REL |
| - ATTACH | - ATTACH |
| + N-DEL | + N-DEL |
| - I | - I |
| - II | - II |
| + III | + III |
| + COUNT | * COUNT |
| * PL | * PL |
| + HUM | * HUM |
| + ACCUS | + THAT |

## Adverbials and Negatives

### TOO

+ ADV
+ TOO
- SPEC

### EITHER

+ ADV
+ TOO
- SPEC
+ INDET
- NEG

### NEITHER

+ ADV
+ TOO
- SPEC
+ INDET
+ NEG

### SOMETIMES

+ ADV
+ TEMPORAL
- DEF
* SPEC
- INDET

### EVER

+ ADV
+ TEMPORAL
- DEF
- SPEC
+ INDET
- NEG

### NEVER

+ ADV
+ TEMPORAL
- DEF
- SPEC
+ INDET
+ NEG

### HARDLY

+ NEG
- COMPLETE

### NOT

+ NEG
+ COMPLETE

### N'T

+ NEG
+ CNTR

## Prepositions

<u>ABOUT</u>

+ PREP
+ NEUT
+ PREP NEUT <u>about</u>

<u>AT</u>

+ PREP
+ NEUT
+ PREP NEUT <u>at</u>

<u>FOR</u>

+ PREP
+ NEUT
+ PREP NEUT <u>for</u>

<u>IN</u>

+ PREP
+ NEUT
+ PREP NEUT <u>in</u>

<u>OF</u>

+ PREP
+ NEUT
+ PREP NEUT <u>of</u>

<u>ON</u>

+ PREP
+ NEUT
+ PREP NEUT <u>on</u>

<u>TO</u>

+ PREP
+ NEUT
+ PREP NEUT <u>to</u>

<u>UPON</u>

+ PREP
+ NEUT
+ PREP NEUT <u>upon</u>

<u>WITH</u>

+ PREP
+ NEUT
+ PREP NEUT <u>with</u>

<u>OF</u>

+ PREP
+ DAT
+ PREP DAT <u>of</u>

<u>TO</u>

+ PREP
+ DAT
+ PREP DAT <u>to</u>

<u>AT</u>

+ PREP
+ INS
+ PREP INS <u>at</u>

WITH

+ PREP
+ INS
+ PREP INS <u>with</u>


BY

+ PREP
+ AGT
+ PREP AGT <u>by</u>


FROM

+ PREP
+ AGT
+ PREP AGT <u>from</u>


OF

+ PREP
+ <u>of</u>

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IBM: International Business Machines Corporation, Thomas J. Watson Research Center, Yorktown Heights, N.Y.

LRP: Linguistics Research Project, Principal Investigator: F.W. Householder, Jr., Indiana University, Bloomington.

POLA: Project on Linguistic Analysis, The Ohio State University Research Foundation, Columbus.

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Addendum


The addendum to the Bibliography contains several titles
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**13. ABSTRACT**

Integration of Transformational Theories on English Syntax

This study attempts to bring together most of the information about the transformational analysis of the grammar of English that was available up through the summer of 1968, and to integrate it into a single coherent format.  The format chosen is that of C. Fillmore (the "Deep Case" hypothesis) combined with the "Lexicalist" hypothesis of N. Chomsky.  The areas of close investigation were the determiner system; pronominalization; negation; conjunction; relativization; complementation and nominalization; the systems of interrogative, passive, imperative, and cleft sentences; the genitive; the lexicon; and the ordering of rules for these areas of the grammar.

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|---|---|---|---|---|---|---|
| | ROLE | WT | ROLE | WT | ROLE | WT |
| English Syntax | | | | | | |
| Transformational Grammar | | | | | | |
| Case Grammar | | | | | | |
| Deep Case Hypothesis | | | | | | |
| Lexicalist Hypothesis | | | | | | |
| Determiners | | | | | | |
| Pronominalization | | | | | | |
| Negation | | | | | | |
| Conjunction | | | | | | |
| Relativization | | | | | | |
| Complementation | | | | | | |
| Nominalization | | | | | | |
| Interrogative | | | | | | |
| Imperative | | | | | | |
| Genitive | | | | | | |
| Cleft | | | | | | |
| Passive | | | | | | |
| Lexicon | | | | | | |
| Case Placement | | | | | | |